

Package ‘RCzechia’

August 7, 2018

Type Package

Title Spatial Objects of the Czech Republic

Version 1.3.0

Date 2018-08-07

Author Jindra Lacko

Maintainer Jindra Lacko <jindra.lacko@gmail.com>

Description Administrative regions, rivers and water bodies of the Czech Republic.

URL <https://github.com/jlacko/RCzechia>

BugReports <https://github.com/jlacko/RCzechia/issues>

License MIT + file LICENSE

Copyright ArcCR, ARCDATA PRAHA, ZU, CSU, 2016

Encoding UTF-8

LazyData true

Depends R (>= 3.3.0)

Imports sf, httr, lwgeom, magrittr

Suggests dplyr, units, tmap, ggmap, knitr, testthat, roxygen2,
devtools, readxl

RoxygenNote 6.1.0

VignetteBuilder knitr

NeedsCompilation no

Repository CRAN

Date/Publication 2018-08-07 12:20:02 UTC

R topics documented:

RCzechia-package	2
casti	3
chr_uzemi	4

kraje	4
lesy	5
obce_body	6
obce_polygony	7
okresy	8
orp_polygony	10
plochy	11
reky	12
republika	12
silnice	13
union_sf	14
zeleznice	15

Index	16
--------------	-----------

RCzechia-package	<i>RCzechia: Spatial Objects of the Czech Republic</i>
------------------	--

Description

A selection of spatial objects relevant to the Czech Republic. Due to CRAN package size requirements (5 MB) the objects are stored externally (on Amazon S3) - and therefore could not be implemented as datasets, they are functions returning data frames instead.

Details

To save time (and bandwidth) the downloaded objects are saved locally in ‘tempdir’ directory when requested and downloaded at most once *per R session*; out of respect to CRAN Repository Policy a more permanent caching on user’s side is not implemented.

This means that:

- a working internet connection is required to use the full resolution objects
- all objects need to be called with (possibly empty) braces

For the most frequently used objects - republika, kraje and okresy - a low resolution version is also implemented. The low resolution data sets are stored locally (and working internet connection is not necessary to use them).

All objects are implemented as sf data frames.

Administrative regions

- republika - borders of the Czech Republic
- kraje - regions / NUTS3 units
- okresy - districts / LAU1 units
- orp_polygony - municipalities with extended powers (obce s rozšířenou působností)
- obce_polygony - municipalities as polygons
- obce_body - municipalities as centroids (points)
- casti - city districts (for cities that implement them)

Natural objects

- reky - rivers
- plochy - water bodies

casti

City Parts

Description

Function taking no parameters and returning data frame of districts of Prague and other major cities as sf polygons.

Usage

```
casti(method = "curl")
```

Arguments

method	Method argument for 'download.file()'. The default (i.e. "curl") should be appropriate in most situations.
--------	--

Format

sf data frame with 142 rows of 4 variables + geometry

KOD Code of the city part / kod mestske casti

NAZEV Name of the city part / nazev mestske casti

KOD_OBEC Code of the city

NAZ_OBEC Name of the city

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 593.6 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

chr_uzemi

Protected Natural Areas

Description

Function returning data frame of protected natural areas (Chráněná území) of the Czech Republic as sf polygons. It has no obligatory parameters.

Usage

```
chr_uzemi(method = "curl")
```

Arguments

method Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 36 rows of 5 variables + geometry

TYP Type of protected area: Národní park, Chráněná krajinná oblast

NAZEV Name, with Czech accents

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 114 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

kraje

Regions (kraje) of the Czech Republic

Description

Function returning data frame of NUTS3 administrative units for the Czech Republic as sf polygons. It takes a single parameter resolution - high res (default) or low res polygons.

Usage

```
kraje(resolution = "high", method = "curl")
```

Arguments

resolution	Should the function return high or low resolution shapefile? Allowed values are "high" (default) and "low". This parameter affects only the geometry column, all other fields remain the same.
method	Method argument for 'download.file()'. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 14 rows of 3 variables + geometry

KOD_KRAJ Code of the region, primary key. Use this as key to add other data items.

KOD_CZNUTS3 Code of the region as NUTS3 (kraj).

NAZ_CZNUTS3 Name of the region as NUTS3 (kraj).

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size of high resolution shapefile is 2.9 MB (so use with caution, and patience).

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

Examples

```
library(sf)

hranice <- kraje()
plot(hranice, col = "white", max.plot = 1)
```

lesy

Woodland Areas

Description

Function returning data frame of woodland areas (lesy) of more than 30 hectares in are of the Czech Republic as sf polygons. It has no obligatory parameters.

Usage

```
lesy(method = "curl")
```

Arguments

method Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 2.366 rows of geometry variable only

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 2.1 MB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

obce_body	<i>Municipalities / communes (obce) as centerpoints</i>
-----------	---

Description

Function returning data frame of LAU2 administrative units for the Czech Republic as sf points. It takes no parameters.

Usage

```
obce_body(method = "curl")
```

Arguments

method Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 6.258 rows of 14 variables + geometry

KOD_OBEC Code of the level I commune (obec).

NAZ_OBEC Name of the level I commune (obec).

KOD_ZUJ Code of the basic administrative unit (ICZUJ).

NAZ_ZUJ Name of the basic administrative unit (ICZUJ).

KOD_POU Code of the level II commune (obec s poverenym uradem).

NAZ_POU Name of the level II commune (obec s poverenym uradem)).

KOD_ORP Code of the level III commune (obec s rozsirenou pusobnosti).

NAZ_ORP Name of the level III commune (obec s rozsirenou pusobnosti).

KOD_OKRES Code of the district (okres).
KOD_LAU1 Code of the LAU1 administrative unit (okres).
NAZ_LAU1 Name of the LAU1 administrative unit (okres).
KOD_KRAJ Code of the region (kraj).
KOD_CZNUTS3 Code of the NUTS3 unit (kraj)
NAZ_CZNUTS3 Name of the NUTS3 unit (kraj)

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 270 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

obce_polygony	<i>Municipalities / communes (obce) as polygons</i>
---------------	---

Description

Function returning data frame of LAU2 administrative units for the Czech Republic as sf polygons. It takes no parameters.

Usage

```
obce_polygony(method = "curl")
```

Arguments

method	Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.
--------	--

Format

sf data frame with 6.258 rows of 14 variables + geometry

KOD_OBEC Code of the level I commune (obec).
NAZ_OBEC Name of the level I commune (obec).
KOD_ZUJ Code of the basic administrative unit (ICZUJ).
NAZ_ZUJ Name of the basic administrative unit (ICZUJ).
KOD_POU Code of the level II commune (obec s poverenym uradem).
NAZ_POU Name of the level II commune (obec s poverenym uradem)).
KOD_ORP Code of the level III commune (obec s rozsirenou pusobnosti).

NAZ_ORP Name of the level III commune (obec s rozsirenou pusobnosti).

KOD_OKRES Code of the district (okres).

KOD_LAU1 Code of the LAU1 administrative unit (okres).

NAZ_LAU1 Name of the LAU1 administrative unit (okres).

KOD_KRAJ Code of the region (kraj).

KOD_CZNUTS3 Code of the NUTS3 unit (kraj)

NAZ_CZNUTS3 Name of the NUTS3 unit (kraj)

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 36.3 MB (so use with caution, and patience).

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

Examples

```
library(sf)
library(dplyr)

praha <- obce_polygon() %>%
  filter(NAZ_LAU1 == "Praha")

plot(praha, max.plot = 1)
```

okresy

Districts (okresy)

Description

Function returning data frame of LAU1 administrative units for the Czech Republic as sf polygons. It takes a single parameter resolution - high res (default) or low res polygons.

Usage

```
okresy(resolution = "high", method = "curl")
```


Arguments

resolution	Should the function return high or low resolution shapefile? Allowed values are "high" (default) and "low". This parameter affects only the geometry column, all other fields remain the same.
method	Method argument for 'download.file()'. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 77 rows of 6 variables + geometry

KOD_OKRES Code of the district (okres).

KOD_LAU1 Code of the district as LAU1 unit (okres), primary key. Use this as key to add other data items.

NAZ_LAU1 Name of the district as LAU1 unit (okres).

KOD_KRAJ Code of the region.

KOD_CZNUTS3 Code of the region as NUTS3 (kraj).

NAZ_CZNUTS3 Name of the region (kraj).

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size of high resolution shapefile is 6.1 MB (so use with caution, and patience).

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

Examples

```
library(sf)

hranice <- okresy()
plot(hranice, col = "white", max.plot = 1)

object.size(okresy("low"))
object.size(okresy("high"))
```

`orp_polygony`*Obce s rozšířenou působností*

Description

Function returning data frame of municipalities with extended powers (obce s rozšířenou působností) as sf polygons. It takes no parameters.

Usage

```
orp_polygony(method = "curl")
```

Arguments

method	Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.
--------	--

Format

sf data frame with 206 rows of 10 variables + geometry

KOD_ORP Code of the level III commune (obec s rozšířenou působností).

NAZ_ZKR_ORP Short name of the level III commune (obec s rozšířenou působností).

NAZ_ORP Full name of the level III commune (obec s rozšířenou působností).

KOD_RUIAN RUIAN (Registr uzemni identifikace, adres a nemovitosti) code.

KOD_OKRES Code of the district (okres).

KOD_LAU1 Code of the LAU1 administrative unit (okres).

NAZ_LAU1 Name of the LAU1 administrative unit (okres).

KOD_KRAJ Code of the region (kraj).

KOD_KRAJ Code of the region (kraj).

KOD_CZNUTS2 Code of the NUTS3 unit (kraj)

NAZ_CZNUTS2 Name of the NUTS3 unit (kraj)

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 9 MB (so use with caution, and patience).

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

plochy

Water Bodies

Description

Function returning data frame of water bodies of the Czech Republic as `sf` polygons. It takes no parameters.

Usage

```
plochy(method = "curl")
```

Arguments

`method` Method argument for `'download.file()'`. The default (i.e. "curl") should be appropriate in most situations.

Format

`sf` data frame with 480 rows of 5 variables + geometry

TYP Type of water body: 1 = dam, 2 = pond, 3 = lake

NAZEV Name, with Czech accents

NAZEV_ASCII Name, without Czech accents

VYSKA water level, meters above sea level

Major Boolean indicating major water bodies

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 118.6 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

reky

Rivers

Description

Function returning data frame of rivers of the Czech Republic as sf lines. It takes no parameters.

Usage

```
reky(method = "curl")
```

Arguments

method Method argument for ‘download.file()’. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 6.198 rows of 4 variables + geometry:

TYP Type of river: 1 = natural, 2 = man-made, 3 = fictional

NAZEV Name, with Czech accents

NAZEV_ASCII Name, without Czech accents

Major Boolean indicating one of the major rivers.

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 1 MB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

republika

Republika

Description

Boundaries of the Czech Republic as sf polygon.

Usage

```
republika(resolution = "high", method = "curl")
```

Arguments

resolution	Should the function return high or low resolution shapefile? Allowed values are "high" (default) and "low". This parameter affects only the geometry column, all other fields remain the same.
method	Method argument for 'download.file()'. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 1 row of 1 variable + geometry:

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size of high resolution shapefile is 949.7 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

Examples

```
library(sf)

hranice <- republika()
plot(hranice, col = "white")
```

silnice

Road Network

Description

Function returning data frame of roads of the Czech Republic as sf lines. It has no obligatory parameters.

Usage

```
silnice(method = "curl")
```

Arguments

method	Method argument for 'download.file()'. The default (i.e. "curl") should be appropriate in most situations.
--------	--

Format

sf data frame with 18.979 rows of 4 variables + geometry:

TRIDA Class of the road: highway = dálnice, speedway = rychlostní silnice, 1st class road = silnice I. třídy, 2nd class road = silnice II. třídy, 3rd class road = silnice III. třídy, other road = neevidovaná silnice

CISLO_SILNICE Local road code

MEZINARODNI_OZNACENI International road code

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 1.5 MB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

union_sf

Aggregate Polygons in a sf Object

Description

The function aggregates polygons of geometry column of a sf data frame according to values of a single data column. It has outcome comparable to unionSpatialPolygons from maptools package, except that it works on sf and not sp objects.

Usage

```
union_sf(data, key, tolerance = 1, planarCRS = 5514)
```

Arguments

data	sf data frame to be aggregated
key	name of column to define the output objects
tolerance	buffer size for avoiding artefacts (slivers); default is one meter
planarCRS	planar CRS for avoiding artefacts (slivers); default is EPSG:5514 = ing. Křovák

Details

The function has data frame as the first argument, so it is pipe friendly. It retains only geometry and key value, dropping all other columns (they are easy to re-attach using tidyverse/dplyr workflow if required).

During processing the sf data frame is temporarily transformed to planar coordinates and - to avoid artefacts (slivers) at the place of former boundaries - buffered; the default values of planarCRS and tolerance should cover most situations in the Czech Republic and near abroad.

Examples

```
NUTS3 <- union_sf(okresy(), "KOD_CZNUTS3")
# assembles NUTS3 regions from LAU1 regions of Czech Republic = equivalent to kraje() in geometry

plot(NUTS3)
```

zeleznice

Railroad Network

Description

Function returning data frame of railroads of the Czech Republic as *sf* lines. It has no obligatory parameters.

Usage

```
zeleznice(method = "curl")
```

Arguments

method Method argument for `download.file()`. The default (i.e. "curl") should be appropriate in most situations.

Format

sf data frame with 3.525 rows of 4 variables + geometry:

ELEKTRIFIKACE is the railroad electrified?: yes = ano, no = ne

KATEGORIE category: international = mezinárodní, local = vnitrostátní

KOLEJNOST track: single = jednokolejní, double = dvojkolejní, more = tří a vícekelejní

ROZCHODNOST gauge: standard = normální, narrow = úzkokolejka

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). Downloaded size is 285 KB.

Source

<https://www.arcdata.cz/produkty/geograficka-data/arccr-500>

Index

casti, [3](#)

chr_uzemi, [4](#)

kraje, [4](#)

lesy, [5](#)

obce_body, [6](#)

obce_polygony, [7](#)

okresy, [8](#)

orp_polygony, [10](#)

plochy, [11](#)

RCzechia-package, [2](#)

reky, [12](#)

republika, [12](#)

silnice, [13](#)

union_sf, [14](#)

zeleznice, [15](#)