Package 'RCzechia'

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Type Package

Title Spatial Objects of the Czech Republic

Version 1.12.10

Date 2026-06-04

Description Administrative regions and other spatial objects of the Czech Republic.

URL https://rczechia.jla-data.net

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

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Encoding UTF-8

Depends R (>= 4.1.0), sf

Imports terra, curl, httr, jsonlite, magrittr

Suggests units, ggplot2, tidyterra, knitr, testthat, roxygen2, rmarkdown, dplyr, s2, lwgeom, covr, czso

SystemRequirements GDAL (>= 2.2.3), GEOS (>= 3.6.2), PROJ (>= 4.9.3)

VignetteBuilder knitr

NeedsCompilation no

Config/testthat/edition 3

Config/testthat/parallel true

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Repository CRAN

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Contents

`RCzechia-package` *RCzechia: Spatial Objects of the Czech Republic*

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 attempted by default – but it can be actively introduced by the user either via a `RCzechia::set_home()` call or by setting the value of `RCZECHIA_HOME` environment variable directly, either using a `Sys.setenv()` call or via editing the `.Renviron` file.

This means that:

- a working internet connection is required to use the full resolution objects
- the first call to an object in a R session will download the object from the internet (and thus take some time)
- the user an has an option to create a permanent local cache of the objects by setting the `RCZECHIA_HOME` environment variable in her `.Renviron` file, gaining a faster access to the objects in the future and sidestepping the requirement of a working internet connection. Out of respect to CRAN Repository Policy this is not default behavior.

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.

Data overview & download sizes

- *republika* - borders of the Czech Republic
  source: RÚIAN / ČÚZK, high res object: 245.8 KB, low res version internal
- *kraje* - 14 regions / NUTS3 units
  source: RÚIAN / ČÚZK, high res object: 982.2 KB, low res version internal
- *okresy* - 76 + 1 districts / LAU1 units
  source: RÚIAN / ČÚZK, high res object: 2.1 MB, low res version internal
- *orp_polygony* - 205 + 1 municipalities with extended powers
  source: RÚIAN / ČÚZK, high res object: 3.1 MB, no low res version
- *obce_polygony* - 6.258 municipalities as polygons
  source: RÚIAN / ČÚZK, high res object: 13.3 MB, no low res version
- *obce_body* - 6.258 municipalities as centroids (points)
  source: RÚIAN / ČÚZK, high res object: 252.0 KB, no low res version
- *casti* - 57 city districts (where available)
  source: RÚIAN / ČÚZK, high res object: 1.5 MB, no low res version
- *senat_obvody* - 81 senate districts
  source: Czech Statistical Office, high res object: 10.5 MB, low res object: 50.0 KB
- *volebni_okrsky* - 14.733 general election districts
  source: RÚIAN / ČÚZK, high res object: 75.8 MB, low res object: 5.0 MB
- *katastry* - 13.076 cadastral areas of the Czech Republic
  source: RÚIAN / ČÚZK, high res object: 26.1 MB, no low res version
- *zip_codes* - 2.671 ZIP code areas
  source: Czech Statistical Office, high res object: 45.4 MB, low res object: 2.1 MB
- *reky* - rivers
  source: Data200, high res object: 4.4 MB, low res object: 301.4 KB
- *plochy* - water bodies
  source: Data200, high res object: 687.0 KB, no low res version

- *lesy* - woodland areas
  source: ArcČR 500 v3.3, high res object: 2.1 MB, no low res version
- *silnice* - roads
  source: Data200, high res object: 6.0 MB, no low res version
- *zeleznice* - railroads
  source: Data200, high res object: 805.8 KB, no low res version
- *KFME_grid* - KFME grid cells (faunistické čtverce)
  source: own work, internal
- *chr_uzemi* - protected natural areas
  source: AOPK ČR, high res object: 7.0 MB, no low res version
- *vyskopis* - terrain relief
  source: Copernicus EU, high res object: 68.8 MB, no low res version
- *geomorfo* - geomorphological divisions
  source: CENIA / INSPIRE, high res object: <1 MB, no low res version
- *historie* - historical admin areas and census records, download size ~ 100 KB to 3.5 MB depending on object
  source: URRlab

Utility functions

In addition the following utility functions are implemented to support spatial workflow:

- *geocode* - geocoding (from address to coordinates)
- *revgeo* - reverse geocoding (from coordinates to address)

Author(s)

Maintainer: Jindra Lacko <jindra.lacko@gmail.com> (ORCID)

Authors:

- Jindra Lacko <jindra.lacko@gmail.com> (ORCID)

Other contributors:

- Nick Bearman (ORCID) (Nick reviewed the package for JOSS, providing helpful comments leading to significant improvement of the package.) [reviewer]

References

Lacko J (2023). "RCzechia: Spatial Objects of the Czech Republic." Journal of Open Source Software, 8(83). doi:10.21105/joss.05082, https://joss.theoj.org/papers/10.21105/joss.05082.

See Also

Useful links:

- https://rczechia.jla-data.net
- Report bugs at https://github.com/jlacko/RCzechia/issues

casti *City Districts*

Description

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

Usage

```
casti()
```

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to June 2024. Downloaded size is 1.5 MB.

Value

`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

Source

© ČÚZK, 2021 https://vdp.cuzk.cz/

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. 32 large (velkoplošná) and 2680 local (maloplošná) protected areas are provided.

Usage

```
chr_uzemi()
```

Details

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

The data is current to June 2025. Downloaded size is 7 MB (so use with caution, and patience).

Value

`sf` data frame with 2712 rows of 3 variables + geometry

TYP Type of protected area

NAZEV Name, with Czech accents

PLOCHA type of protected area: large or small

Source

© AOPK ČR, 2025 https://data.nature.cz/

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geocode *Geocode a Czech Address*

Description

This function connects to Czech State Administration of Land Surveying and Cadastre (https://cuzk.gov.cz/en) API to geocode an address. As consequence it is implemented only for Czech addresses.

Usage

```
geocode(address, crs = 4326)
```

Arguments

`address`	point to be geocoded, as character (vector)
`crs`	coordinate reference system of output; default = WGS84

Details

Input of the function are an address to geocode (or a vector of addresses) and expected Coordinate Reference System of output (default is WGS84 = EPSG:4326, but in some use cases inž. Křovák = EPSG:5514 may be more relevant).

NA's in input are considered an error.

Output is a `sf` data frame of spatial points.

Depending on the outcome of matching the address to RÚIAN data there is a number of possible outcomes:

- All items were *matched exactly*: the returned `sf` data frame has the same number of rows as there were elements in vector to be geocoded. The field *target* will have zero duplicates.
- Some items had *multiple matches*: the returned `sf` data frame has more rows than the there were elements in vector to be geocoded. In the field *target* will be duplicate values. Note that the RÚIAN API limits multiple matches to 10.
- Some (but not all) items had *no match* in RUIAN data: the returned `sf` data frame will have fewer rows than the vector sent. to be geocoded elements. Some values will be missing from field *target*.
- No items were matched at all: the function returns empty data frame and a message.
- The CUZK API is down or overloaded: the function returns empty data frame and a message.

Note that character encoding is heavily platform dependent, and you may need to convert to UTF-8, e.g. by running `address <- iconv(address, from = "windows-1250", to = "UTF-8")` before calling the function.

Usage of the ČÚZK API is governed by ČÚZK Terms & Conditions - https://geoportal.cuzk.cz/Dokumenty/Podminky.pdf.

Value

`sf` data frame with 3 variables + geometry

address the address searched (address input)

type type of record matched by API

result address as returned by API / recorded in RÚIAN

geometry hidden column with spatial point data

Examples

```
asdf <- geocode("Gogolova 212, Praha 1")
print(asdf)
```

`geomorfo` *Geomorphological division of the Czech Republic*

Description

Function returning one of the 8 levels of Geomorphological division of the Czech Republic, as specified by the obligatory parameter **level**.

Usage

```
geomorfo(level)
```

Arguments

`level`	level of geomorphological division. One of system, subsystem, provincie, subprovincie, oblast, celek, podcelek, okrsek.

Details

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

The data is current to 2014 (3rd edition of Demek & Mackovčin's *Zeměpisný lexikon ČR. Hory a nížiny.*) Downloaded size is < 1 MB for any of the hierarchy levels.

Value

`sf` data frame with geomorfo division names & codes + geometry; namely:

system name of the system; 2 rows

subsystem names of the system, subsystem + kod; 4 rows

provincie name of the province; 4 rows

subprovincie name of the subprovince + kod; 10 rows

oblast name of the subprovince, oblast + kod; 27 rows

celek name of the subprovince, oblast, celek + kod; 93 rows

podcelek name of the subprovince, oblast, celek, podcelek + kod; 253 rows

okrsek name of the subprovince, oblast, celek, podcelek, okrsek + kod; 933 rows

Source

CENIA / INSPIRE, via Mgr. Vojtěch Blažek, Ph.D. https://www.arcgis.com/home/item.html?id=25813686a8564b0bbcdc951a5573cfa4

Examples

```
library(sf)

soustavy <- RCzechia::geomorfo("subprovincie")

plot(soustavy["kod"])
```

`historie` *Historical censuses of the Czech Republic*

Description

Function returning historical admin areas of the Czech Republic, together with relevant census data as specified by parameter **era**.

Usage

```
historie(era)
```

Arguments

`era`	a historical era of interest.

Details

The census data structure is too complex to fully list here; most of the fields are self documenting (for Czech speakers) - and when in doubt please consult the original metadata at https://cuni.maps.arcgis.com/home/item.html?id=c2f19cd1146747a9a8daf5b900e7747b, or the original journal article at doi:10.14712/23361980.2015.93.

Of notable interest is the 1930 census, which was the last before WWII - and thus the last one to include Czechoslovak citizens of German ethnicity.

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

Value

`sf` data frame with historical admin area names & census data + geometry; namely:

okresy_1921 soudní okresy + census 1921; 328 rows / 92 columns + geometry

okresy_1930 soudní okresy + census 1931; 330 rows / 90 columns + geometry

okresy_1947 politické okresy + census 1947; 163 rows / 68 columns + geometry

okresy_1950 správní okresy + census 1950; 182 rows / 57 columns + geometry

okresy_1961 správní okresy + census 1960; 76 rows / 105 columns + geometry

okresy_1970 správní okresy + census 1970; 76 rows / 144 columns + geometry

okresy_1980 správní okresy + census 1980; 76 rows / 148 columns + geometry

okresy_1991 správní okresy + census 1991; 76 rows / 155 columns + geometry

okresy_2001 správní okresy + census 2001; 77 rows / 174 columns + geometry

okresy_2011 správní okresy + census 2011; 77 rows / 176 columns + geometry

kraje_1950 kraje + census 1950; 13 rows / 55 columns + geometry

kraje_1961 kraje + census 1960; 8 rows / 103 columns + geometry

kraje_1970 kraje + census 1970; 8 rows / 144 columns + geometry

kraje_1980 kraje + census 1980; 8 rows / 146 columns + geometry

kraje_1991 kraje + census 1991; 8 rows / 153 columns + geometry

kraje_2001 kraje + census 2001; 14 rows / 172 columns + geometry

kraje_2011 kraje + census 2011; 14 rows / 174 columns + geometry

Credits:

1. „Tento výstup vznikl v rámci řešení projektu číslo DF12P01OVV033 Zpřístupnění historických prostorových a statistických dat v prostředí GIS řešeného v rámci programu Aplikovaného výzkumu a vývoje národní a kulturní identity (NAKI), jehož poskytovatel je Ministerstvo kultury České republiky.“
2. „JÍCHOVÁ, J., SOUKUP, M., NEMEŠKAL, J., OUŘEDNÍČEK, M., POSPÍŠILOVÁ, L., SVOBODA, P., ŠPAČKOVÁ, P. a kol. (2014): Geodatabáze historických statistických a prostorových dat Česka ze Sčítání lidu, domů a bytů 1921-2011. Urbánní a regionální laboratoř, Přírodovědecká fakulta Univerzity Karlovy v Praze, Praha.“

Source

Urbánní a regionální laboratoř (UrRlab) působící na katedře sociální geografie a regionálního rozvoje Přírodovědecké fakulty Univerzity Karlovy v Praze https://www.historickygis.cz/

Examples

```
library(sf)

pre_war <- RCzechia::historie("okresy_1930")

plot(pre_war[, 47], main = "Residents of German ethnicity")
```

`katastry` *Cadastral Areas*

Description

Function taking no parameters and returning data frame of cadastral areas (katastrální území) as `sf` polygons.

Usage

```
katastry()
```

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size is 26.1 MB.

Value

`sf` data frame with 13074 rows of 5 variables + geometry

KOD Code of the cadastral area / kód katastrálního území

NAZEV Name of the cadastral area / název katastrálního území

KOD_OBEC Code of the municipality

NAZ_OBEC Name of the municipality

digi boolean indicating completed digitalization

Source

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Examples

```
library(sf)

# which cadastral area of Prague is the smallest?
praha <- RCzechia::katastry() |>
   subset(NAZ_OBEC == "Praha")

smallest <- which.min(sf::st_area(praha))

plot(st_geometry(RCzechia::obce_polygony() |>
```

```
   subset(NAZ_OBEC == "Praha")))

plot(st_geometry(RCzechia::reky("Praha")), col = "navyblue", add = TRUE)

# it is Josefov - the former Jewish Ghetto
plot(st_geometry(praha[smallest, ]), col = "red", add = TRUE)
```

KFME_grid *KFME grid cells (faunistické čtverce) of the Czech Republic*

Description

Function returning grid covering the Czech Republic according to the Kartierung der Flora Mitteleuropas methodology.

Usage

```
KFME_grid(resolution = "low")
```

Arguments

`resolution`	Should the function return high or low resolution shapefile? Allowed values are "low" and "high". Default is "low".

Details

The function returns a `sf` data frame of grid cells. Depending on the value of parameter `resolution` either low resolution (26×42 cells - default) with labels in 4 digit format (e.g. Hrčava = 6479) or high resolution (104×168 cells) with labels in 4 digit + 1 letter format (e.g Hrčava = 6479c).

Raw version of the dataset is available for download for use in non-R setting on https://rczechia.jla-data.net/kfme_czechia.gpkg.

Value

`sf` data frame with 1092 rows in low resolution and 4368 rows in high resolution

ctverec KFME code of the grid cell; depending on value of `resolution` parameter either 4 digits, or 4 digits + 1 letter

Examples

```
library(ggplot2)

ggplot() +
  geom_sf(data = republika("low")) +
  geom_sf(data = KFME_grid("low"), fill = NA)
```

`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")
```

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.

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size of high resolution shapefile is <1 MB; low resolution object is internal.

Value

`sf` data frame with 14 rows of 3 variables + geometry

KOD_KRAJ Code of the region.

KOD_CZNUTS3 Code of the region as NUTS3 (kraj).

NAZ_CZNUTS3 Name of the region as NUTS3 (kraj).

Source

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Examples

```
library(sf)

colors <- rainbow(14) # legend colors

hranice <- RCzechia::kraje("low")

plot(hranice["KOD_CZNUTS3"],
     col = colors,
     main = "Czech Regions",
     xlim = st_bbox(hranice)[c(1, 3)] * c(1, 1.1))

legend("right",
       hranice$KOD_CZNUTS3,
       fill = colors,
       bty = "n")
```

---

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()
```

Details

Due to package size constraints the data are stored externally (and a working internet connection is required to use the package). The data is current to January 2014. Downloaded size is 2.1 MB.

Value

`sf` data frame with 2.366 rows of geometry variable only

Source

© ArcČR, ARCDATA PRAHA, ZÚ, ČSÚ, 2016 https://www.arcdata.cz/cs-cz/produkty/data/arccr?rsource=https%3A%2F%2Fwww.arcdata.cz%2Fprodukty%2Fgeograficka-data%2Farccr-4

obce_body *Municipalities / communes (obce) as centerpoints*

Description

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

Usage

```
obce_body()
```

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size is <1 MB.

Value

`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_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)

ICO ID number of the commune / ičo obce

DIC tax ID of the commune / dič obce

Source

© ČÚZK, 2025 https://vdp.cuzk.cz/

`obce_polygony` *Municipalities / communes (obce) as polygons*

Description

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

Usage

```
obce_polygony()
```

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size is 13.3 MB (so use with caution, and patience).

Value

`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_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)

ICO ID number of the commune / ičo obce

DIC tax ID of the commune / dič obce

Source

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Examples

```
library(sf)
library(dplyr)

praha <- obce_polygony() |>
  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")
```

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.

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size of high resolution shapefile 2.1 MB; low resolution object is internal.

Value

`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).

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).

Source

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Examples

```
library(sf)

hranice <- okresy()
plot(st_geometry(hranice), col = "white")

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

`orp_polygony` *Obce s rozsirenou pusobnosti*

Description

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

Usage

```
orp_polygony()
```

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to July 2025. Downloaded size is 3.1 MB.

Value

`sf` data frame with 206 rows of 5 variables + geometry

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

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

KOD_KRAJ Code of the region (kraj).

KOD_CZNUTS3 Code of the NUTS3 unit (kraj)

NAZ_CZNUTS3 Name of the NUTS3 unit (kraj)

Source

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plochy *Water Bodies*

Description

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

Usage

```
plochy()
```

Details

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

The data is current to December 2020. Downloaded size is 1.5 MB.

Value

`sf` data frame with 1.769 rows of 2 variables + geometry

NAZEV Name, with Czech accents

VYSKA water level, meters above sea level

Source

Mapový podklad – Data200, 2021 © Český úřad zeměměřický a katastrální. https://cuzk.gov.cz

reky *Rivers*

Description

Function returning data frame of rivers of the Czech Republic as `sf` lines. It takes a single parameter `scope` with default "global".

Usage

```
reky(scope = "global", resolution = "high")
```

Arguments

scope	Should the function return all rivers, or just Vltava in Prague / Svitava & Svratka in Brno?
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.

Details

Two special case scopes are defined: Praha (returning the part of Vltava in and around Prague) and Brno (returning Svitava and Svratka near and around Brno).

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

The data is current to January 2021. Downloaded size is 4.4 MB.

Value

`sf` data frame with 3.617 rows of 4 variables + geometry:

TYP Type of river

NAZEV Name, with Czech accents

Navigable Boolean indicating navigability of river.

Major Boolean indicating one of the major rivers.

Source

Mapový podklad – Data200, 2021 © Český úřad zeměměřický a katastrální. https://cuzk.gov.cz>

Examples

```
library(sf)

plot(st_geometry(subset(okresy(), KOD_LAU1 == "CZ0642"))) # Brno city
plot(reky("Brno"), add = TRUE) # Svitava & Svratka added to Brno my city plot
```

---

republika *Republika*

Description

Boundaries of the Czech Republic as `sf` polygon.

Usage

```
republika(resolution = "high")
```

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.

Details

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

The dataset is based on RUIAN data by the Czech cadastral office. If necessary you can download the most up to date raw dataset in VFR format (a special case of XML which is understood by GDAL) on https://vdp.cuzk.cz/vdp/ruian/vymennyformat (in Czech only).

The data is current to June 2024. Downloaded size of high resolution shapefile is <1 MB; low resolution object is internal.

Value

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

Source

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Examples

```
library(sf)

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

---

revgeo *Reversely Geocode a Czech Address*

Description

This function connects to Czech State Administration of Land Surveying and Cadastre (https://cuzk.gov.cz/en) API to reversely geocode an address. As consequence it is implemented only for Czech addresses.

Usage

```
revgeo(coords)
```

Arguments

`coords`	coordinates to be reverse geocoded; expected as `sf` data frame of spatial points

Details

Input of the function is a `sf` data frame of spatial points, and output a vector of characters.

The function returns the same `sf` data frame as input, with added field revgeocoded; it contains the result of operation. Should the data frame contain a column named revgeocoded it will be overwritten.

In case of reverse geocoding failures (e.g. coordinates outside of the Czech Republic and therefore scope of ČÚZK) NA is returned.

In case of API failures (CUZK down) the function returns NAs again, with a message.

Usage of the ČÚZK API is governed by ČÚZK Terms & Conditions - https://geoportal.cuzk.cz/Dokumenty/Podminky.pdf.

Value

`sf` data frame as input, with column revgeocoded added (or overwritten)

Examples

```
library(dplyr)
library(sf)

brno <- obce_polygony() |> # shapefile of Brno
  filter(NAZ_OBEC == "Brno") |>
  st_transform(5514) # planar CRS (eastings & northings)

pupek_brna <- st_centroid(brno) # calculate centroid

adresa_pupku <- revgeo(pupek_brna)$revgeocoded # address of the center

print(adresa_pupku)
```

---

senat_obvody *Senate Districts (Volební obvod pro volby do Senátu) of the Czech Republic*

Description

Function returning data frame of the 81 Senate Districts for the Czech Republic as `sf` polygons. It takes a single parameter resolution - high res (default) or low res polygons.

Usage

```
senat_obvody(resolution = "high")
```

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.

Details

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

The data is current to February 2021 (last update was in 2016). Downloaded size of high resolution shapefile is 10 MB, size of the low res object is negligible (but a working internet is still required, as the object is not internal).

Value

`sf` data frame with 81 rows of 3 variables + geometry

OBVOD Code of the district; left padded with zero in case of districts one to nine.

SIDLO Seat of the senator.

NAZEV_VO Formal name of the district.

Source

ČSÚ https://www.czso.cz/csu/czso/podminky_pro_vyuzivani_a_dalsi_zverejnovani_statistickych_udaju_csu

Examples

```
library(sf)

senat <- senat_obvody("low")
plot(st_geometry(senat), col = "white")
nrow(senat) # 81, because the Constitution says so...
```

`set_home` *Set the local cache directory*

Description

The function sets the environment variable RCZECHIA_HOME to be used as a local cache for RCzechia remote files; if unset tempdir() is used instead, with persistence for current session only.

Usage

```
set_home(path)
```

Arguments

`path`	path to local filesystem directory to be used as a cache; must exist and must be writable

Details

Note that when set (it is unset by default) the remote files will be cached to local file system and persist between R sessions, for good or bad.

Also note that you can set the value of RCZECHIA_HOME environment variable directly, either via a `Sys.setenv()` call or via your `.Renviron` file.

Value

TRUE for success and FALSE for failure; returned silently

`silnice` *Road Network*

Description

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

Usage

```
silnice()
```

Details

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

The data is current to December 2020. Downloaded size is 6 MB.

Value

`sf` data frame with 59.594 rows of 3 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

Source

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---

unset_home *Unset the local cache directory*

Description

The function unsets the environment variable RCZECHIA_HOME, meaning tempdir() will be used in future function calls, and no persistent data will be stored locally.

Usage

```
unset_home()
```

Value

TRUE for success and FALSE for failure; returned silently

---

volebni_okrsky *Election Districts (Volební okrsky) of the Czech Republic*

Description

Function returning data frame of the local election districts for the Czech Republic as `sf` polygons. It takes a single parameter resolution - high res (default) or low res polygons.

Usage

```
volebni_okrsky(resolution = "high")
```

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.

Details

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

The data is current to July 2025. Downloaded size of high resolution shapefile is 75 MB, size of the low res object is 5 MB (so proceed with caution, and patience).

Value

`sf` data frame with 14 711 rows of 6 variables + geometry

Kod Unique id of the district.

Cislo Id of the district within a given Obec / not globally unique.

ObecKod Id of obec - maps to obce_polygony()$KOD_OBEC.

MomcKod Id of městská část - maps to casti()$KOD.

KOD_LAU1 Id of okres - maps to okresy()$KOD_LAU1.

KOD_CZNUTS3 Id of kraj - maps to kraje()$KOD_CZNUTS3.

Source

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Examples

```
 library(sf)

prazske_okrsky <- subset(volebni_okrsky("low"), ObecKod == "554782")
plot(prazske_okrsky) # the districts of Prague
```

`vyskopis` *Vyskopis*

Description

Terrain of the Czech Republic as a `terra` package object.

Usage

```
vyskopis(format = "rayshaded", cropped = TRUE)
```

Arguments

`format`	Should the function return actual terrain (meters above sea level) or shaded relief (rayshaded). Allowed values are "actual" and "rayshaded".
`cropped`	Should the raster provide data over Czech Republic's bounding box (cropped = FALSE) or just actual borders (cropped = TRUE). Defaults to TRUE to preserve compatibility with earlier versions.

Details

The function returns a raster file of either actual terrain (values are meters above sea level) or rayshaded relief.

The raster is created from EU DEM 1.1 file by Copernicus Land Monitoring service. The original file has pixel resolution 25×25 meters, which is too detailed for purposes of the package and was downsampled by factor of 4.

The extent of the raster file is bounding box of the Czech Republic; this is a change to prior versions in order to better facilitate use of the raster in natural sciences context. To preserve compatibility optional argument `cropped` has been created, defaulting to `TRUE` (i.e. behavior before v1.10.0).

Due to package size constraints both versions are stored externally (and a working internet connection is required to use the package).

The data is current to year 2011 (but it is not expected to materially change over time). Downloaded size of the rasters is 70 MB, so proceed with caution.

Value

`terra` package SpatRaster

Source

Copernicus Land Monitoring service, with funding by the European Union. https://land.copernicus.eu/en/products/products-that-are-no-longer-disseminated-on-the-clms-website

Examples

```
library(terra)

# original extent - bounding box over Czech Republic
original_extent <- vyskopis("rayshaded", cropped = FALSE)

plot(original_extent, col = gray.colors(16))

# add plot of country borders, for context
plot(RCzechia::republika(),
     border = "red",
     col = NA,
     add = TRUE)

# cropped to size - default behaviour
cropped_extent <- vyskopis("rayshaded")

plot(cropped_extent, col = gray.colors(16))
```

zeleznice *Railroad Network*

Description

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

Usage

```
zeleznice()
```

Details

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

The data is current to December 2020. Downloaded size is <1 MB.

Value

`sf` data frame with 9.957 rows of 3 variables + geometry:

ELEKTRIFIKACE is the railroad electrified?

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

ROZCHODNOST gauge: standard = normální, narrow = úzkokolejka

Source

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zip_codes *ZIP Codes of the Czech Republic*

Description

Function returning data frame of the 2 671 ZIP Code Areas for the Czech Republic as `sf` polygons. It takes a single parameter resolution - high res (default) or low res polygons.

Usage

```
zip_codes(resolution = "high")
```

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.

Details

Note that there are a number of special ZIP Codes - e.g. 118 01 for Government of the Czech Republic (Strakova akademie / Nábřeží Edvarda Beneše 4). These are not listed here, as they do not relate to a specific delivery area but are in essence private.

The geometry type is MULTIPOLYGON, as there are a number of non continuous areas of delivery.

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

The data is current to February 2021 (last update was in January 2020). Downloaded size of high resolution shapefile is 45 MB, size of the low res object is 2 MB.

Raw version of the dataset is available for download for use in non-R setting on https://rczechia.jla-data.net/zip_codes.gpkg.

Value

`sf` data frame with 2 671 rows of 2 variables + geometry

PSC ZIP Code as string in format NNNNN.

NAZ_POSTA Responsible Post Office

Source

ČSÚ https://www.czso.cz/csu/czso/podminky_pro_vyuzivani_a_dalsi_zverejnovani_statistickych_udaju_csu

Examples

```
library(sf)
library(dplyr)

# residence of the Czech Prime Minister
kramarova_vila <- RCzechia::geocode("Gogolova 212, Praha 1")

# ZIP code of the PM residence
kramarova_vila |>
   st_join(RCzechia::zip_codes("low"), left = FALSE) |>
   pull(PSC)
```

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