

Package ‘reproj’

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Type Package

Title Coordinate System Transformations for Map Data

Version 0.4.0

Description Transform coordinates via 'PROJ' using the library directly, by wrapping the 'proj4' package. The 'reproj' function handles the need for radian units for either source or target and allows removing an explicit source definition in methods that extend the generic. The 'PROJ' library is available at <<https://proj4.org/>>.

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LazyData TRUE

Depends R (>= 3.2.5)

Imports proj4, tibble

Suggests testthat, covr

RoxygenNote 6.1.1

Encoding UTF-8

SystemRequirements PROJ (>= 4.4.6)

BugReports <https://github.com/hypertidy/reproj/issues/>

URL <https://github.com/hypertidy/reproj/>

NeedsCompilation no

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reproj-package *Reproject data from source to target coordinate system.*

Description

reproj provides helpers for easily reprojecting generic data, by depending on a reprojection engine (proj4 for now).

Details

The function `reproj` is designed to take an input data set `x` and then a target coordinate system specification. The source argument is not positional (must be named) and must be provided. Currently the coordinate system may be a 'PROJ string' or 'EPSG code' either as a number or text.

Methods are provided for data frame and matrix, add S3 methods for your classes in your own package. For classed objects, or objects with a known method for finding the 'source' coordinate system your method can provide that logic.

reproj.sc *Reproject coordinates.*

Description

reproj drives the function `proj4::pttransform` and sorts out the requirements for it so that we can simply give coordinates in data frame or matrix form, with a source projection and a target projection.

Usage

```
## S3 method for class 'sc'  
reproj(x, target, ..., source = NULL)
```

```
## S3 method for class 'mesh3d'  
reproj(x, target, ..., source = NULL)
```

```
reproj(x, target, ..., source = NULL)
```

```
## S3 method for class 'matrix'  
reproj(x, target, ..., source = NULL)
```

```
## S3 method for class 'data.frame'  
reproj(x, target, ..., source = NULL)
```

Arguments

x	coordinates
target	target specification (PROJ.4 string or epsg code)
...	arguments passed to <code>proj4::ptransform()</code>
source	source specification (PROJ.4 string or epsg code)

Details

The behaviour is controlled by user-settable options which on start up are `reproj.assume.longlat = TRUE` and `reproj.default.longlat = "+proj=longlat +datum=WGS84 +no_defs"`.

If the option `reproj.assume.longlat` is set to `FALSE` then the source argument must be named explicitly, i.e. `reproj(xy, t_srs, source = s_srs)`, this is to help catch mistakes being made. The target is the second argument in `reproj` though it is the third argument in `proj4::ptransform`. This function also converts to radians on input or output as required.

If the option `reproj.assume.longlat` is set to `TRUE` and the input data appear to be sensible longitude/latitude values, then the value of `reproj.default.longlat` is used as the assumed source projection.

At the moment `reproj` always returns a 3-column matrix.

Ideally `proj4` will be replaced by a more modern interface to the PROJ library.

On some systems we cannot use an epsg integer code, particularly CRAN's 'winbuilder' because it won't work with '+init=epsg:code' forms. So we don't test or document examples of those.

Value

matrix

Warning

there are a number of limitations to the `proj4` package, please use at your own risk. The `sf` package provides a better supported facility to modern code and for datum transformations. We have not even checked if `proj4` can do that.

Examples

```
reproj(cbind(147, -42), target = "+proj=laea +datum=WGS84",
       source = "+proj=longlat +datum=WGS84")
```

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