Package: gpx3d (via r-universe)

August 17, 2024

Title 3D Plot A Route From A GPX File

Version 0.0.0.9002

Description Extract a data from a GPX file into a an sf-class dataframe, then plot a 3D rendering of the route. Designed with workout-route data from the Apple Health app in mind.

URL https://github.com/matt-dray/gpx3d

BugReports https://github.com/matt-dray/gpx3d/issues

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Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.2

Imports cryogenic, devout, devoutrgl, ggplot2, ggrgl, grDevices, sf, snowcrash, triangular, xml2

Remotes coolbutuseless/devout, coolbutuseless/devoutrgl, coolbutuseless/triangular, coolbutuseless/snowcrash, coolbutuseless/cryogenic, coolbutuseless/ggrgl

Suggests testthat (>= 3.0.0), covr

Config/testthat/edition 3

Depends R (>= 2.10)

Repository https://matt-dray.r-universe.dev

RemoteUrl https://github.com/matt-dray/gpx3d

RemoteRef HEAD

RemoteSha 1664ec4efb6c8ae14f01fd7f58aad44f0d038f35

Contents

`extract_gpx3d` *Extract A Dataframe From A GPX File*

Description

Takes a .gpx file as input and extracts the date, time, latitude, longitude and elevation data to a data.frame. Geometry and point distances are calculated with coercion to sf-class. Designed for use with .gpx files downloaded from the Apple Health app, which represent individual workouts.

Usage

```
extract_gpx3d(gpx_file, sf_out = TRUE)
```

Arguments

`gpx_file`	Character. Path to a valid .gpx file.
`sf_out`	Logical. Retain sf-class in output (defaults to TRUE), or output as a data.frame only (FALSE)? Package sf is used within the function to calculate distance between points.

Details

The function usess the sf package to create a 'geometry' column from which distances can be generated between points along the route. You may want to retain the sf class for further geospatial analysis, otherwise you can output a regular data.frame with `sf_out = FALSE`, which strips the sf metadata and the 'geometry' column.

Value

A data.frame, sf-class by default, with columns 'time' (datetime), 'ele' (double), 'lon' (double), 'lat' (double) and 'distance' (units, metres); 'geometry' (POINT) if sf-class is retained with `sf_out = TRUE`.

Examples

```
## Not run: extract_gpx3d(gfx_segment)
```

gpx_segment *A Workout Route Segment*

Description

An sf-class data.frame with a row per point recorded along a workout route, originally exported as a gpx file from Apple Health and with data exported by the `extract_gpx3d` function.

Usage

```
gpx_segment
```

Format

An sf-class data.frame with 501 features and 5 fields:

time datetime

ele elevation (metres)

lon longitude

lat latitude

geomatry sf-class POINT geometry of lon-lat

distance units (metres), distance between this point and the previous

plot_gpx3d *Render A 3D Plot Of A Route From A GPX File*

Description

Create a ggplot2 plot object with a third dimension thanks to ggrgl. The x and y coordinates are the longitude and latitude, the z dimension is the elevation along the route. The chart title includes the total distance, elevation disparity, plus the date and start/end times.

Usage

```
plot_gpx3d(route_df, route_only = FALSE)
```

Arguments

`route_df`	A data.frame, optionally sf-class. Output from must be in the format output via `extract_gpx3d`.
`route_only`	Logical. Retain all chart elements if `FALSE` (default) or retain only the route path if `FALSE`.

Value

An interactive 3D rendering of the route path in a devoutrgl device.

Examples

```
## Not run:
x <- extract_gpx3d(gfx_segment)
plot_gpx3d(y)

## End(Not run)
```

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