Package 'animaltracker'

January 8, 2019

Title Animal Tracker

Version 0.0.1.9000

Description Import, visualize, and analyze GPS and accelerometer data for spatial-temporal tracking of animals (e.g., cows).

Depends R (>= 3.3)

Imports shiny (>= 1.2.0), xts (>= 0.11.2), leaflet (>= 2.0.2), dplyr (>= 0.7.5), sp (>= 1.3.1), ggplot2 (>= 3.1.0), scales (>= 1.0.0), tidyr (>= 0.8.2), sp (>= 1.3.1), rgdal (>= 1.3.6), raster(>= 2.7.15), nabor(>= 0.5.0), elevatr (>= 0.2.0), geosphere (>= 1.5.7), RSQLite(>= 2.1.1)

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 6.1.1

R topics documented:

add_to_gitignore *Add big files to a .gitignore file*

Description

Add big files to a .gitignore file

Usage

```
add_to_gitignore(data_dir)
```

Arguments

data_dir	directory of animal data files

boxplot_altitude *Generates a boxplot to visualize the distribution of altitude by GPS.*

Description

Generates a boxplot to visualize the distribution of altitude by GPS.

Usage

```
boxplot_altitude(rds_path)
```

Arguments

rds_path	Path of .rds animal data file to read in

Value

overall boxplot of altitude by GPS

boxplot_time_unit *Generates a boxplot to visualize the distribution of time between GPS measurements by GPS unit.*

Description

Generates a boxplot to visualize the distribution of time between GPS measurements by GPS unit.

Usage

```
boxplot_time_unit(rds_path)
```

Arguments

rds_path	Path of .rds animal data file to read in

Value

distribution of time between GPS measurements by GPS unit, as a boxplot

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`clean_batch` *Cleans a directory of animal data files and stores them in .rds files*

Description

Cleans a directory of animal data files and stores them in .rds files

Usage

```
clean_batch(data_dir)
```

Arguments

`data_dir`	location of animal data files, in list format

Value

df of metadata for animal file directory

`clean_df` *Clean animal data frame*

Description

Clean animal data frame

Usage

```
clean_df(df, ani_id, gps_id)
```

Arguments

`df`	raw input data frame
`ani_id`	animal ID (from meta)
`gps_id`	GPS ID (from meta)

Value

cleaned data frame

`clean_export_files` *Cleans all animal GPS datasets in a chosen directory and exports them as a single .rds file*

Description

Cleans all animal GPS datasets in a chosen directory and exports them as a single .rds file

Usage

```
clean_export_files(data_dir, out_path, processed_dir = "data/processed")
```

Arguments

`data_dir`	directory of GPS tracking files (in csv)
`out_path`	name of output file, must end in .rds
`processed_dir`	directory of processed GPS datasets

`export_animal_elevation` *Export modeled elevation data from existing animal data file*

Description

Export modeled elevation data from existing animal data file

Usage

```
export_animal_elevation(rds_path, out_path)
```

Arguments

`rds_path`	animal tracking data file to model elevation from
`out_path`	exported file path

Value

list of data frames with gps data augmented by elevation

get_data_from_meta *Get animal data set from specified meta*

Description

Get animal data set from specified meta

Usage

```
get_data_from_meta(meta_df, min_date, max_date, min_time, max_time)
```

Arguments

meta_df	data frame of specified meta
min_date	minimum date specified by user
max_date	maximum date specified by user
min_time	minimum time specified by user
max_time	maximum time specified by user

get_elevation *Retrieve and save high resolution elevation data for the region of analysis from the internet*

Description

Retrieve and save high resolution elevation data for the region of analysis from the internet

Usage

```
get_elevation(latmin, latmax, lonmin, lonmax, out_dir, zoom = 12,
  zone = 11)
```

Arguments

latmin	minimum latitude for bounding box (degrees)
latmax	maximum latitude for bounding box (degrees)
lonmin	minimum longitude for bounding box (degrees)
lonmax	maximum longitude for bounding box (degrees)
out_dir	folder path to save the elevation data
zoom	level of zoom, defaults to 12
zone	geographic zone, defaults to 11

Value

elevation data as spatial points

get_file_meta — *Generate metadata for a directory of animal data files*

Description

Generate metadata for a directory of animal data files

Usage

```
get_file_meta(data_dir)
```

Arguments

data_dir	directory of animal data files

Value

list of data info as a list of animal IDs and GPS units

get_meta — *Generate metadata for an animal data frame - filename, site, date min/max, animals, min/max lat/longitude, storage location*

Description

Generate metadata for an animal data frame - filename, site, date min/max, animals, min/max lat/longitude, storage location

Usage

```
get_meta(df, file_id, file_name, site, ani_id, storage_loc)
```

Arguments

df	clean animal data frame
file_id	ID number of .csv source of animal data frame
file_name	.csv source of animal data frame
ani_id	ID of animal found in data frame
storage_loc	.rds storage location of animal data frame

Value

df of metadata for animal data frame

histogram_animal_elevation

Generate a histogram of the distribution of modeled elevation - measured altitude

Description

Generate a histogram of the distribution of modeled elevation - measured altitude

Usage

```
histogram_animal_elevation(csv_path)
```

Arguments

csv_path	path of csv GPS data to model elevation from

Value

histogram of the distribution of modeled elevation - measured altitude

histogram_time

Generates a histogram to visualize the distribution of time between GPS measurements.

Description

Generates a histogram to visualize the distribution of time between GPS measurements.

Usage

```
histogram_time(rds_path)
```

Arguments

rds_path	Path of .rds cow data file to read in

Value

distribution of time between GPS measurements, as a histogram

`histogram_time_unit` *Generates a histogram to visualize the distribution of time between GPS measurements by GPS unit.*

Description

Generates a histogram to visualize the distribution of time between GPS measurements by GPS unit.

Usage

```
histogram_time_unit(rds_path)
```

Arguments

`rds_path`	Path of .rds animal data file to read in

Value

distribution of time between GPS measurements by GPS unit, as a histogram

`model_animal_elevation` *Model elevation from GPS data (provided csv)*

Description

Model elevation from GPS data (provided csv)

Usage

```
model_animal_elevation(csv_path)
```

Arguments

`csv_path`	path of csv GPS data

Value

modeled elevation data

`qqplot_time` *Generates a QQ plot to show the distribution of time between GPS measurements.*

Description

Generates a QQ plot to show the distribution of time between GPS measurements.

Usage

```
qqplot_time(rds_path)
```

Arguments

`rds_path`	Path of .rds animal data file to read in

Value

quantile-quantile plot to show distribution of time between GPS measurements

`quantile_time` *Determines the GPS measurement time value difference values roughly corresponding to quantiles with .05 intervals.*

Description

Determines the GPS measurement time value difference values roughly corresponding to quantiles with .05 intervals.

Usage

```
quantile_time(rds_path)
```

Arguments

`rds_path`	Path of .rds animal data file to read in

Value

approximate time difference values corresponding to quantiles (.05 intervals)

`run_shiny_animaltracker` *You can run the animaltracker Shiny app by calling this function.*

Description

You can run the animaltracker Shiny app by calling this function.

Usage

```
run_shiny_animaltracker()
```

Arguments

`rds_path`	Path of Animal data file to input

`save_meta` *Save metadata to a data frame and return it*

Description

Save metadata to a data frame and return it

Usage

```
save_meta(meta_df, file_meta)
```

Arguments

`meta_df`	the data frame to store metadata in
`file_meta`	meta for a .csv file generated by get_meta

`summarize_unit` *Summarize by GPS unit*

Description

Summarize by GPS unit

Usage

```
summarize_unit(rds_path)
```

Arguments

`rds_path`	Path of .rds cow data file to read in

Value

summary statistics for animals by GPS unit

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