Package: crputils (via r-universe)

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Title Miscellaneous R Utilities Useful to CRP

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Description A collection of miscellaneous utilities that are useful for various research activities conducted by the Cetacean Research Program (CRP) at NOAA NMFS Pacific Islands Fisheries Science Center. This includes utilities for working with latitude and longitude data, gpx file creation, and more to come.

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Encoding UTF-8

Roxygen list(markdown = TRUE)

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Imports lubridate, stringr, swfscDAS, utils

Repository https://pifsc-protected-species-division.r-universe.dev

RemoteUrl https://github.com/PIFSC-Protected-Species-Division/crputils

RemoteRef HEAD

RemoteSha f9943828aead54e1a732573153b313d43b853202

Contents

`CSVToGPX_track` *CSVToGPX_track*

Description

convert a .csv of vessel track segments to a .gpx file.

The input data.frame must have 1 column 'uid' containing a unique identifier for that track/segment, 2 columns for start latitude and longitude, and 2 columns for stop latitude and longitude. Additional columns for cruise, date, vessel name, etc will be ignored

This is a modified version of `trackToGPX.R` that is included in the 'cruise-maps-live' repository that tries to generalize the function to convert any input data.frame, not just the output from a .das file.

Usage

```
CSVToGPX_track(inCSV, outGPX)
```

Arguments

`inCSV`	filename of csv containing track data to be processed. Must include the following columns: uid, startLat, startLon, stopLat, stopLon where uid is a unique track identifier, startLat/startLon is the track start location and stopLat/stopLon is the track end location. All locations should be in decimal degrees. Can optionally include a startDateTime and stopDateTime column. Assumes UTC timezone for GPX output.
`outGPX`	fullpath filename of gpx to be written example: `outGPX <- './crputils/exampleData/exampleVessel`

Value

none, will write a file

Author(s)

Selene Fregosi

`DASTrackToGPX` *DASTrackToGPX*

Description

create a .gpx file based on the effort track data recorded in .DAS files. The track data needs to have been extracted from the .DAS file using `extractDASTrack()` which creates the 'et' dataframe

Track segments within days are plotted separately but are connected. Tracks across days are not connected.

This was generalized from the cruise-maps-live repository's `trackToGPX()`

Usage

```
DASTrackToGPX(et, outGPX)
```

Arguments

`et`	data.frame of effort as tracks, can be 'et' cumulative over a survey or 'et' for just a single DAS
`outGPX`	fullpath filename to save example: `outGPX <- paste0('newEffortTracks_', dasName, '_', Sys.Date(), '.gpx')`

Value

none, will write a file

Author(s)

Selene Fregosi

`decdeg2degmin` *decdeg2degmin*

Description

Utility to convert latitude and longitude coordinates from decimal degrees to degrees decimal minutes

Usage

```
decdeg2degmin(decdeg)
```

Arguments

`decdeg`	N-by-1 vector of coordinates in decimal degrees e.g., `decdeg <- 30.48667` OR `decdeg <- c(30.48667, -155.61496)`

Value

N-by-2 data.frame of coordinates with columns 'deg' for degrees and 'min' for decimal minutes

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
decdeg <- 30.48667
degmin <- decdeg2degmin(decdeg)

# multiple input coordinates
decdeg <- c(30.48667, -155.61496)
degmin <- decdeg2degmin(decdeg)
```

`decdeg2degminsec` *decdeg2degminsec*

Description

Utility to convert latitude and longitude coordinates from degrees minutes to degrees minutes second

Usage

```
decdeg2degminsec(decdeg)
```

Arguments

`decdeg`	N-by-1 vector of coordinates in decimal degrees e.g., `decdeg <- 30.48667` OR `decdeg <- c(30.48667, -155.61496)`

Value

N-by-3 data.frame of coordinates with columns 'deg' for degrees, 'min' for minutes, and 'sec' for decimal seconds

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
decdeg <- 30.48667
degminsec <- decdeg2degminsec(decdeg)

# multiple input coordinates
decdeg <- c(30.48667, -155.61496)
degminsec <- decdeg2degminsec(decdeg)
```

degmin2decdeg *Degrees decimal minutes to decimal degrees*

Description

Utility to convert latitude and longitude coordinates from degrees minutes to decimal degrees

Usage

```
degmin2decdeg(degmin)
```

Arguments

degmin	N-by-2 matrix of coordinates with each column representing degrees and minutes. e.g., `matrix(c(30, 29.2020), nrow = 1, ncol = 2)` e.g., `matrix(c(30, 29.2020, -155, 36.8973), nrow = 2, ncol = 2, byrow = TRUE)`

Value

N-by-1 vector of coordinates in decimal degrees

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
degmin <- matrix(c(30, 29.2020), nrow = 1, ncol = 2)
decdeg <- degmin2decdeg(degmin)

# multiple input coordinates
degmin <- matrix(c(30, 29.2020,
                   -155, 36.8973),
                 nrow = 2, ncol = 2, byrow = TRUE)
decdeg <- degmin2decdeg(degmin)
```

degmin2degminsec *degmin2degminsec*

Description

Utility to convert latitude and longitude coordinates from degrees minutes to degrees minutes seconds

Usage

```
degmin2degminsec(degmin)
```

Arguments

degmin	N-by-2 matrix of coordinates with each column representing degrees and minutes e.g., `matrix(c(30, 29.2020), nrow = 1, ncol = 2)` e.g., `matrix(c(30, 29.2020, -155, 36.8973), nrow = 2, ncol = 2, byrow = TRUE)`

Value

N-by-3 data.frame of coordinates with columns 'deg for degrees and 'min' for minutes and 'sec' for decimal seconds

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
degmin <- matrix(c(30, 29.2020), nrow = 1, ncol = 2)
degminsec <- degmin2degminsec(degmin)

# multiple input coordinates
degmin <- matrix(c(30, 29.2020,
                   -155, 36.8973),
                 nrow = 2, ncol = 2, byrow = TRUE)
degminsec <- degmin2degminsec(degmin)
```

---

degminsec2decdeg *degminsec2decdeg*

Description

Utility to convert latitude and longitude coordinates from degrees minutes seconds to decimal degrees

Usage

```
degminsec2decdeg(degminsec)
```

Arguments

degminsec	N-by-3 matrix of coordinates with each column representing degrees, minutes, and seconds e.g., `matrix(c(30, 29, 12), nrow = 1, ncol = 3)` e.g., `matrix(c(30, 29, 12, -155, 36, 53.838), nrow = 2, ncol = 3, byrow = TRUE)`

Value

N-by-1 vector of coordinates in decimal degrees

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
degminsec = matrix(c(30, 29, 12), nrow = 1, ncol = 3)
decdeg = degminsec2decdeg(degminsec)

# multiple input coordinates
degminsec = matrix(c(30, 29, 12,
                     -155, 36, 53.838),
                   nrow = 2, ncol = 3, byrow = TRUE)
decdeg = degminsec2decdeg(degminsec)
```

`degminsec2degmin` *degminsec2degmin*

Description

Utility to convert latitude and longitude coordinates from degrees minutes seconds to degrees decimal minutes

Usage

```
degminsec2degmin(degminsec)
```

Arguments

`degminsec`	N-by-3 matrix of coordinates with each column representing degrees, minutes, and seconds e.g., `matrix(c(30, 29, 12), nrow = 1, ncol = 3)` e.g., `matrix(c(30, 29, 12, -155, 36, 53.838), nrow = 2, ncol = 3, byrow = TRUE)`

Value

N-by-2 data.frame of coordinates with columns 'deg' for degrees and 'min' for minutes

Author(s)

Selene Fregosi

Examples

```
# single input coordinates
degminsec <- matrix(c(30, 29, 12), nrow = 1, ncol = 3)
degmin <- degminsec2degmin(degminsec)

# multiple input coordinates
degminsec <- matrix(c(30, 29, 12,
                      -155, 36, 53.838),
                    nrow = 2, ncol = 3, byrow = TRUE)
degmin <- degminsec2degmin(degminsec)
```

`extractDASTrack` *extractDASTrack*

Description

Pull effort tracks from a relatively raw daily .das file into a simpler dataframe. Utilizes the package `swfscDAS` and then cleans up those outputs a bit. Generalized from cruise-maps-live's `extractTrack()`

Usage

```
extractDASTrack(df_proc)
```

Arguments

`df_proc`	processed das file (with `swfscDAS::das_process`)

Value

a dataframe of effort tracks with date and lat/lon

Author(s)

Selene Fregosi

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