Package ‘rtide’

July 10, 2020

Title  Tide Heights
Version  0.0.8
Description  Calculates tide heights based on tide station harmonics.
   It includes the harmonics data for 637 US stations.
   The harmonics data was converted from <https://github.com/poissonconsulting/rtide/blob/master/data-raw/harmonics-dwf-20151227-free.tar.bz2>,
   NOAA website data processed by David Flater for 'XTide'.
   The code to calculate tide heights from the harmonics is based on 'XTide'.
License  GPL-3
URL  https://github.com/poissonconsulting/rtide
BugReports  https://github.com/poissonconsulting/rtide/issues
Depends  R (>= 3.4)
Imports  abind, chk, dttr2, utils, tibble
Suggests  ggplot2, scales, testthat, covr
Encoding  UTF-8
LazyData  true
RoxygenNote  7.1.1.9000
NeedsCompilation  no
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Repository  CRAN
Date/Publication  2020-07-10 10:20:02 UTC
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**brandywine**

*Brandywine Tide Height Data*

**Description**

High/Low Tide Predictions from [http://tidesandcurrents.noaa.gov/tide_predictions.html](http://tidesandcurrents.noaa.gov/tide_predictions.html).

**Usage**

`brandywine`

**Format**

A tbl data frame:

- **Station** The station name (chr).
- **DateTime** The date time (time).
- **MLLW** The tide height in m (dbl).

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**harmonics**

*Harmonics*

**Description**

A object of class tide_harmonics providing tidal harmonic data for US stations.

**Usage**

`harmonics`

**Format**

An object of class tide_harmonics of length 4.
is.tide_harmonics

Details
Converted from harmonics-dwf-20151227-free, NOAA web site data processed by David Flater for XTide.

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is.tide_harmonics  Is tide_harmonics

Description
Tests if object inherits from class tide_harmonics.

Usage
is.tide_harmonics(x)

Arguments
x The object to test.

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monterey  Monterey Tide Height Data

Description
High/Low Tide Predictions from http://tidesandcurrents.noaa.gov/tide_predictions.html.

Usage
monterey

Format
A tbl data frame:

**Station**  The station name (chr).
**DateTime** The date time (time).
**MLLW**  The tide height in m (dbl).
tide_datetimes  

**Tide Date Times**

**Description**
Generates sequence of date times.

**Usage**
```
tide_datetimes(
  minutes = 60L,
  from = as.Date("2015-01-01"),
  to = as.Date("2015-12-31"),
  tz = "PST8PDT"
)
```

**Arguments**
- **minutes**: An integer of the number of minutes between tide heights
- **from**: A Date of the start of the period of interest
- **to**: A Date of the end of the period of interest
- **tz**: A string of the time zone.

**Value**
A POSIXct vector.

**Examples**
```
tide_datetimes()
```

tide_height  

**Tide Height**

**Description**
Calculates tide height at specified stations based on the supplied harmonics object.

**Usage**
```
tide_height(
  stations = "Monterey Harbor",
  minutes = 60L,
  from = as.Date("2015-01-01"),
  to = as.Date("2015-01-01"),
  tz = "UTC",
  harmonics = rtide::harmonics
)
```
**tide_height_data**

**Arguments**

- **stations**: A character vector of stations to match - treated as regular expressions.
- **minutes**: An integer of the number of minutes between tide heights.
- **from**: A Date of the start of the period of interest.
- **to**: A Date of the end of the period of interest.
- **tz**: A string of the time zone.
- **harmonics**: The harmonics object.

**Value**

A data frame of the tide heights in m by the number of minutes for each station from from to to.

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**tide_height_data**  
*Tide Height Data*

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**Description**

Calculates tide height at specified stations at particular date times based on the supplied harmonics object.

**Usage**

`tide_height_data(data, harmonics = rtide::harmonics)`

**Arguments**

- **data**: A data frame with the columns Station and DateTime.
- **harmonics**: The harmonics object.

**Value**

A data frame of the tide heights in m.
tide_slack_data  Tide Slack Data

Description

Determines the closest slack tide for specified stations at particular date times based on the supplied harmonics object.

Usage

tide_slack_data(data, harmonics = rtide::harmonics)

Arguments

data A data frame with the columns Station and DateTime.
harmonics The harmonics object.

Value

A data frame of the slack tide date times and heights in m.

tide_stations  Tide Stations

Description

Gets vector of matching stations.

Usage

tide_stations(stations = ".*", harmonics = rtide::harmonics)

Arguments

stations A character vector of stations to match - treated as regular expressions.
harmonics The harmonics object.
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