Package ‘gwavr’

January 27, 2022

Title  Get Water Attributes Visually in R

Version 0.1.0

Description Provides methods to Get Water Attributes Visually in R ('gwavr'). This allows the user to point and click on areas within the United States and get back hydrological data, e.g. flowlines, catchments, basin boundaries, comids, etc.

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Encoding UTF-8

RoxygenNote 7.1.1

Imports dplyr, httr, jsonlite, leaflet, leaflet.extras, magrittr, miniUI, nhdplusTools, purrr, scales, sf, shiny, shinyWidgets, tidyr, units, utils, promises

Suggests spelling

Language en-US

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**base_map**

*Base Map*

**Description**

A generic leaflet base map used in the shiny apps.

**Usage**

```r
base_map()
```

**Value**

A leaflet map with provider layers: "Esri.WorldImagery", "CartoDB.Positron", "OpenStreetMap", "CartoDB.DarkMatter", "OpenTopoMap" "Hydrography"

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**get_nhdplus_interactively**

*Get NHDPlus Interactively*

**Description**

This function allows the user go get NHDPlus realizations interactively with a shiny app.

**Usage**

```r
get_nhdplus_interactively(
  ns = "hydro-ui",
  viewer = shiny::paneViewer(),
  title = "NHDPlus",
  ...
)
```

**Arguments**

- `ns` string name for the Shiny namespace to use. The ns is unlikely to require a change.
- `viewer` function for the viewer. See Shiny `viewer`. NOTE: when using `browserViewer(browser = getOption("browser"))` to open the app in the default browser, the browser window will automatically close when closing the app (by pressing "done" or "cancel") in most browsers. Firefox is an exception. See Details for instructions on how to enable this behaviour in Firefox.
- `title` string to customize the title of the UI window. The default is "NHDPlus".
- `...` other arguments to `leafletOutput()` in module.
get_NLDI

Value

A list of sf objects that the user collected during shiny session.

Note

The picker list has seven options right now: NHDPlus Catchments, NHDPlus Flowlines, NHDPlus Waterbodies, NHDPlus Outlet, HUC 12, HUC 8, NWIS Site.

Examples

```r
if(interactive()){
  nhdplus_data <- get_nhdplus_interactively()
}
```

Description

This function grabs the upstream tributaries, upstream main stream and basin boundary using the NLDI API. It then combines the NLDI zonal stats to the basin boundary shape, i.e. 'TOT' is the 'total' basin zonal statistic.

Usage

```r
get_NLDI(point)
```

Arguments

- **point**  
  A sf point.

Value

A list of UT, UM and basin boundary sf objects
get_NLDI_catchments  Get NLDI Catchments

Description
This function grabs the 'local' zonal stats for 'all' subcatchments above a point or only for the 'local' catchment using the NLDI API. This is different than get_NLDI(), which grabs the entire basin above a point.

Usage
get_NLDI_catchments(point, type = "local", method = "all")

Arguments
point  A sf point object.
type  A character 'local' or 'all'.
method  A character 'local' or 'all'.

Value
A list of sf objects: UT and catchments.

Note
This function can be expensive when using type = 'local' and method = 'all' depending on the size of the upstream area.

get_nldi_interactively  Get NLDI Interactively

Description
This function uses the NLDI API to allow the user to visually select a location (point) to get numerous hydrologic realizations.

Usage
get_nldi_interactively()

Value
A list with sf objects.
Note

The picker list has three options right now: Total Basin, All Local Catchments and Only Local Catchment. Descriptions below:

- **Total Basin**: This will return the upstream tributaries (UT), upstream main (UM), basin boundary and site data above the user point.

- **All Local Catchments**: This will return the upstream tributaries (UT) and all the local NHD-PlusV2 catchments above the user point. In addition, each catchment will contain the zonal stats associated with 'CAT' in NLDI.

- **Only Local Catchment**: This will only return the catchment at the point and tributary. In addition, it will also include the zonal stat for that catchment.

Examples

```r
if(interactive()){
  nldi_data <- get_nldi_interactively()
}
```

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**nhdplusMod**  
*Shiny Module Server for nhdplus*

**Description**

Shiny Module Server for nhdplus

**Usage**

`nhdplusMod(input, output, session, values)`

**Arguments**

- `input`  
  Shiny server function input

- `output`  
  Shiny server function output

- `session`  
  Shiny server function session

- `values`  
  A reactive Values list to pass

**Value**

server function for Shiny module
Shiny Module UI for nhdplus

Description
A shiny Module to.

Usage
```r
nhdplusModUI(id, ...)
```

Arguments
- **id** character id for the the Shiny namespace
- **...** other arguments to `leafletOutput()`

Value
UI function for Shiny module
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