

Package ‘dsmSearch’

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Type Package

Title DSM and LiDAR downloader

Version 1.0.1

Description A collection of functions to search and download

DSM (Digital Surface Model) and LiDAR (Light Detection and Ranging) data via APIs, including 'OpenTopography' <<https://portal.opentopography.org/apidocs/>> and 'TNMAccess' <<https://apps.nationalmap.gov/tnmaccess/#/>>.

Depends R (>= 4.1)

License GPL-3

Encoding UTF-8

RoxygenNote 7.3.1

Language en_GB

Suggests testthat (>= 3.0.0), knitr, rmarkdown

VignetteBuilder knitr, rmarkdown

Imports dplyr, sf, sp, terra, lidR, httr2, imager

NeedsCompilation no

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R topics documented:

get_dsm_30	2
get_lidar	3
lidar_search	4

Index

5

`get_dsm_30` `get_dsm_30`

Description

Search for and download ALOS Global Digital Surface Model (AW3D30) via OpenTopography API 1.0.0 based on coordinates of a spatial point with a given distance or bounding box. The raster resolution is 30 meter.

Usage

```
get_dsm_30(x, y, r, epsg, bbox, key = "")
```

Arguments

x	numeric, indicating Longitude degree of the center point.
y	numeric, indicating latitude degree of the center point.
r	numeric, indicating search distance (meter or feet) for LiDAR data.
epsg	numeric, the EPSG code specifying the coordinate reference system.
bbox	vector, a bounding box defining the geographical area for downloading data.
key	character, API key of OpenTopography.

Details

To request an API key of OpenTopography, online registration is needed.

Value

raster

Examples

`get_lidar``get_lidar`

Description

Search for and download LiDAR data based on coordinates of a spatial point with a given distance or a bounding box. The maximum distance is 1000m. Different dataset could be found and the function automatically downloads the latest dataset. To get more details of data on a larger scale, please use `viewscape::lidar_search`.

Usage

```
get_lidar(x, y, r, epsg, bbox, max_return = 500, folder)
```

Arguments

<code>x</code>	numeric, indicating Longitude degree of the center point.
<code>y</code>	numeric, indicating latitude degree of the center point.
<code>r</code>	numeric, indicating search distance for LiDAR data. The maximum distance is 1000m (3281ft). If <code>r > 1000m</code> , it will be reset to 1000m.
<code>epsg</code>	numeric, the EPSG code specifying the coordinate reference system.
<code>bbox</code>	vector, a bounding box defining the geographical area for downloading data.
<code>max_return</code>	numeric, indicating the maximum of returns.
<code>folder</code>	string (optional), indicating a path for downloading the LiDAR data

Value

lidR LAS object.

References

Jean-Romain Roussel and David Auty (2022). Airborne LiDAR Data Manipulation and Visualization for Forestry Applications. R package version 4.0.1. <https://cran.r-project.org/package=lidR>

See Also

[lidar_search\(\)](#)

Examples

```
las <- dsmSearch::get_lidar(x = -83.741289, y = 42.270146, r = 1000, epsg = 2253)
las <- dsmSearch::get_lidar(bbox = c(-83.742282, 42.273389, -83.733442, 42.278724), epsg = 2253)
terra::plot(lidR::rasterize_canopy(las, 10, lidR::dsmtin()))
```

lidar_search

lidar_search

Description

The lidar_search function is designed to facilitate the retrieval and exploration of LiDAR (Light Detection and Ranging) data within a specified bounding box (bbox). This function enables users to search for LiDAR data, preview available graphics, and optionally download LiDAR data files for further analysis.

Usage

```
lidar_search(bbox, max_return = 500, preview = FALSE, folder = "")
```

Arguments

<code>bbox</code>	vector, a bounding box defining the geographical area for the LiDAR data search.
<code>max_return</code>	numeric, indicating the maximum of returns.
<code>preview</code>	logical. If TRUE (default is FALSE), enable or disable previewing LiDAR graphics.
<code>folder</code>	string (optional), indicating an optional folder path where downloaded LiDAR data files will be saved.

Value

dataframe

Note

The `lidar_search` function simplifies the process of searching for and working with LiDAR data via the TNMAccess API: <https://tnmaccess.nationalmap.gov/api/v1/docs>.

Examples

Index

get_dsm_30, [2](#)

get_lidar, [3](#)

lidar_search, [4](#)

lidar_search(), [3](#)