

Package ‘PurpleAirAPI’

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Type Package

Title Historical Data Retrieval from 'PurpleAir' Sensors via API

Version 0.1.0

Description Provides tools for retrieving and analyzing air quality data from 'PurpleAir' sensors through their API. Functions enable downloading historical measurements, accessing sensor metadata, and managing API request limitations through chunked data retrieval. For more information about the 'PurpleAir' API, see <<https://api.purpleair.com/>>.

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URL <https://github.com/heba-razzak/PurpleAirAPI>

Imports httr, jsonlite

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr

Config/testthat/edition 3

Encoding UTF-8

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NeedsCompilation no

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```
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```

Description

Retrieves data from PurpleAir sensors based on specified fields.

Usage

```
getPurpLeairSensors(  
  apiReadKey = NULL,  
  fields = c("latitude", "longitude", "date_created", "last_seen")  
)
```

Arguments

`apiReadKey` API key for accessing the PurpleAir API.

`fields` Vector specifying the fields to retrieve from PurpleAir API.
Default: `c("latitude", "longitude", "date_created", "last_seen")`

Details

Available fields:

Station Information and Status	name, icon, model, hardware, location_type, private, latitude, longitude, altitude, position
Environmental	humidity, humidity_a, humidity_b, temperature, temperature_a, temperature_b, pressure
Miscellaneous	voc, voc_a, voc_b, ozone1, analog_input
PM1.0	pm1.0, pm1.0_a, pm1.0_b, pm1.0_atm, pm1.0_atm_a, pm1.0_atm_b, pm1.0_cf_1, pm1.0_cf_2
PM2.5	pm2.5_alt, pm2.5_alt_a, pm2.5_alt_b, pm2.5, pm2.5_a, pm2.5_b, pm2.5_atm, pm2.5_atm_a, pm2.5_atm_b
Visibility	scattering_coefficient, scattering_coefficient_a, scattering_coefficient_b, deciviews, deciviews_a, deciviews_b
Particle Count	0.3_um_count, 0.3_um_count_a, 0.3_um_count_b, 0.5_um_count, 0.5_um_count_a, 0.5_um_count_b
ThingSpeak	primary_id_a, primary_key_a, secondary_id_a, secondary_key_a, primary_id_b, primary_key_b, secondary_id_b, secondary_key_b

Value

A data frame containing the required fields for all PurpleAir sensors

References

For more details on the available fields, see the PurpleAir API documentation: <https://api.purpleair.com/#api-sensors-get-sensors-data>

Examples

```
## Not run:
# Get sensor data with default fields
sensors <- getPurpleairSensors(apiReadKey = "YOUR_API_KEY")

# Get sensor data with custom fields
sensors <- getPurpleairSensors(
  apiReadKey = "YOUR_API_KEY",
  fields = c("latitude", "longitude", "date_created", "last_seen",
            "location_type")
)

## End(Not run)
```

getSensorHistory *getSensorHistory*

Description

Download historical data for PurpleAir sensors using API.

Usage

```
getSensorHistory(
  sensorIndex = NULL,
  apiReadKey = NULL,
  startDate = NULL,
  endDate = NULL,
  average = NULL,
  fields = NULL
)
```

Arguments

sensorIndex	PurpleAir sensor's index.
apiReadKey	PurpleAir API read key.
startDate	Date of the first required history entry.
endDate	Date of the history to return. Uses end of date specified.
average	The desired average in minutes: 0, 10, 30, 60, 360, 1440, 10080, 43200, 525600
fields	The 'sensor data fields' to include in the response.

Details

Available fields:

Station Information and Status	hardware*, latitude*, longitude*, altitude*, firmware_version*, private, rssi, uptime, pa_
Environmental	humidity, humidity_a, humidity_b, temperature, temperature_a, temperature_b, pressure
Miscellaneous	voc, voc_a, voc_b, analog_input
PM1.0	pm1.0_atm, pm1.0_atm_a, pm1.0_atm_b, pm1.0_cf_1, pm1.0_cf_1_a, pm1.0_cf_1_b
PM2.5	pm2.5_alt, pm2.5_alt_a, pm2.5_alt_b, pm2.5_atm, pm2.5_atm_a, pm2.5_atm_b, pm2.5_
PM10.0	pm10.0_atm, pm10.0_atm_a, pm10.0_atm_b, pm10.0_cf_1, pm10.0_cf_1_a, pm10.0_cf_
Visibility	scattering_coefficient, scattering_coefficient_a, scattering_coefficient_b, deciviews, deci
Particle Count	0.3_um_count, 0.3_um_count_a, 0.3_um_count_b, 0.5_um_count, 0.5_um_count_a, 0.5_

Value

Dataframe of PurpleAir history data of one or multiple sensors.

References

For more details on the available fields, see the PurpleAir API documentation: <https://api.purpleair.com/#api-sensors-get-sensor-history-csv>

Examples

```
## Not run:
# Download hourly PM2.5 data for one month
history <- getSensorHistory(
  sensorIndex = c(6127, 9014, 3124),
  apiReadKey = "YOUR_API_KEY",
  startDate = "2024-01-01",
  endDate = "2024-01-31",
  average = 60,
  fields = c("pm2.5_alt", "temperature", "humidity")
)

## End(Not run)
```

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