knmy Documentation

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Contents

knmy is a Python package for downloading and processing weather data from the automated weather stations of the Dutch Meteorological Institute (KNMI). Documentation of the used API can be found here (only in Dutch).

CHAPTER 1

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1.1 License

1.2 Developer

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1.3 Changelog

1.3.1 Version 1.5.1

Updated to work with changes to KNMI API.

Data that can be requested via the API has remained the same, but there are several noteworthy changes

- API endpoints have been updated.
- Station names are not included in the dataframes by default anymore, instead only the station number is given. The parser still outputs a dataframe with station names and respective numbers, so they can still be linked.
- The metadata provided by the KNMI for several variables and API endpoints has changed, sometimes dramatically. Unfortunately the documentation on the KNMI website does not fully reflect what the API provides anymore.
- The previous version of the parser was fairly flexible, but the new version unfortunately relies on parsing hard-coded 'blocks' of information, because of some small inconsistencies. Unfortunately this also means minor changes to the formatting by KNMI will break the functionality of the parser again (but not data download).

If somehow the parser or other functionalities stop working, don't hesitate to open an issue on GitHub.

1.3.2 Version 1.0.0

Initial release.

CHAPTER 2

Usage

The main function is `get_knmi_data()`, which requires at minimum a `type` (first argument) to function. You can choose from:

1. `type = 'daily'`, which returns the daily aggregate weather data of all selected weather variables.
2. `type = 'hourly'`, which returns the hourly aggregate weather data of all selected weather variables.
3. `type = 'daily_rain'`, which always returns only the daily rain and snow cover data.

For convenience you have access to three wrapper functions that correspond to each of the aforementioned types: `get_daily_data()`, `get_hourly_data()` and `get_daily_rain_data()`

CHAPTER 3

Example usage

```
from knmy import knmy

# Return daily aggregated wind, temperature and sunshine duration data for station␣
↪209 (IJmond) for the 1st til
# 6th of January, 2017
knmy.get_daily_data(stations=[209], start=20170101, end=20170106, variables=['WIND',
↪'TEMP', 'SQ'])

# Return dataframe with hourly wind and temperature data for station 209 (IJmond) and␣
↪235 (De Kooy) for the 1st
# til 6th of January of the years 2015 til 2017 for the 8th til 20th hour of the day
disclaimer, stations, variables, data = knmy.get_hourly_data(stations=[209, 235],␣
↪start=2015010108, end=2017010620,
                                                             inseason=True,␣
↪variables=['WIND', 'TEMP'], parse=True)

# Return dataframe with daily rain data for all stations for January 1st, 2017
disclaimer, variables, data = knmy.get_daily_rain_data(start=20170101, end=20170101,␣
↪parse=True)
```

CHAPTER 4

Function parameters

`stations` should contain a list of weather station numbers. To find out which weather stations are available for use, use the function without setting any *stations* (but with a `start` and `end` set), the function will then return a variable `stations` which contains a list of stations for which data is available for that period.

`start` and `end` are either an integer or `datetime` object (`datetime.date` for `get_daily_data` and `datetime.datetime` for `get_hourly_data`. If hourly data is requested, data is always returned starting from the hour set in `start` until the hour set in `end`. In case an integer is provided, make sure the first hour of the day (00:00-01:00) is hour 1 and the last hour of the day (23:00-24:00) is hour 24. To request overnight data — such as from 22:00 til 06:00 the next morning — use for example `start=2017010123` and `end=2017010507`.

`variables` should contain a list of variables, and if none are specified returns all recorded variables. Variables can be selected individually, but also in the groups below. If you are unsure of the available variables, use one of the functions without providing variables and read the unpacked list of variables (see *Example usage*).

Variable groups:

- `ALL` = All variables (**Default**)
- `WIND` = DDVEC:FG:FHX:FHX:FX Wind
- `TEMP` = TG:TN:TX:T10N Temperature
- `SUNR` = SQ:SP:Q Sunshine
- `PRCP` = DR:RH:EV24 Precipitation and potential evaporation
- `PRES` = PG:PGX:PGN Pressure at sea level
- `VICL` = VVN:VVX:NG Visibility and cloud cover
- `MSTR` = UG:UX:UN Humidity

`inseason` is a boolean. If set to *True*, the function will only return data within the month-date combination for all given years (see *Example usage*).

`parse` is a boolean. If set to *True*, the function will parse the KNMI output data and return a *disclaimer*, measured *variables*, *data* and a list of *stations*.

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