

Package ‘RNRCS’

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Type Package

Title Download NRCS Data

Version 0.2.5

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Description Downloads Natural Resources Conservation Service (NRCS) data for sites in the Soil Climate Analysis Network (SCAN) <<https://www.wcc.nrcs.usda.gov/scan/>>, and Snow Telemetry (SNOTEL and SNOLITE) <<https://www.wcc.nrcs.usda.gov/snow/>> networks. Meta-data can be returned for all sites in the NRCS' Air and Water Data Base (AWDB) <https://www.wcc.nrcs.usda.gov/report_generator/AWDB_Network_Codes.pdf>.

URL <https://rhlee12.github.io/RNRCS/>

Depends R (>= 3.3)

Imports magrittr, rvest, xml2, ggplot2, stats, utils

License GPL-3

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LazyData true

RoxygenNote 6.0.1

NeedsCompilation no

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elementCodes	<i>NRCS Element Codes</i>
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Description

A dataset containing Element names (eg. "Air Temperature Max") and the corresponding abbreviated element code ("TMAX").

Usage

```
data(elementCodes)
```

Format

A data frame with 102 rows and 3 variables

grabBOR.data	<i>grabBOR.data</i>
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Description

A data downloading tool for reservoirs managed by the United States Bureau of Reclamation. Data retrieval is limited by the speed of the connection, if timeout errors persist break requested time periods down into smaller chunks, or use a faster connection.

Usage

```
grabBOR.data(site_id, timescale, DayBgn, DayEnd)
```

Arguments

site_id	The BOR site ID. Use grabNRCS.meta to retrieve a list of available sites in a specified network. Consider using the package 'metScanR' to locate sites.
timescale	Specify the desired timescale of the data. Typically 'hourly', 'daily', or 'monthly'
DayBgn	Specify the beginning date (as YYYY-MM-DD) for the returned data.
DayEnd	Specify the end date (as YYYY-MM-DD) for the returned data.

Value

Returns a data frame of requested data and a list of variables with no data.

Author(s)

Robert Lee <rhlee@colorado.edu>

References

Downloads <<https://wcc.sc.egov.usda.gov/reportGenerator>>

See Also

Currently none

Examples

```
## Not run:
JacksonLake<- grabBOR.data(site_id = 13010500, timescale = "monthly",
DayBgn="2016-01-01", DayEnd="2017-01-01")

## End(Not run)
#Return monthly summaries for the period of record at a Jackson Lake, WY.
```

grabNRCS.data

grabNRCS.data

Description

A data downloading tool for NRCS networks. Data retrieval is limited by the speed of the connection, if timeout errors persist break requested time periods down into smaller chunks, or use a faster connection.

Usage

```
grabNRCS.data(network, site_id, timescale, DayBgn, DayEnd)
```

Arguments

network	The network of the NRCS/AWDB site of interest. Currently only works for options: 'SCAN', 'SNTL', 'SNTLT', and 'OTHER'.
site_id	The NRCS site ID. Use grabNRCS.meta to retrieve a list of available sites in a specified network. Consider using the package 'metScanR' to locate sites.
timescale	Specify the desired timescale of the data. Typically 'hourly', 'daily', or 'monthly'
DayBgn	Specify the beginning date (as YYYY-MM-DD) for the returned data.
DayEnd	Specify the end date (as YYYY-MM-DD) for the returned data.

Value

Returns a data frame of requested data. Only elements with at least one data will be returned in the data frame.

Author(s)

Robert Lee <rhlee@colorado.edu>

References

Downloads <<https://wcc.sc.egov.usda.gov/reportGenerator>>

See Also

Currently none

Examples

```
## Not run:
grabNRCS.data(network="SNTLT", site_id=1198, timescale="monthly",
DayBgn = '2017-01-01', DayEnd = '2017-05-01')
#Return monthly summaries between January and May 2017 of record at a SNOLITE site.

## End(Not run)
```

grabNRCS.elements

grabNRCS.elements

Description

A search tool that grabs element metadata (reporting variables) for sites within networks managed by the NRCS. Element level metadata can be pulled for the following networks: i) SCAN, ii) SNOTEL (SNTL), iii) SNOTEL-Lite (SNTLT), or iv) OTHER

Usage

```
grabNRCS.elements(site_id = "SCAN:2221")
```

Arguments

<code>site_id</code>	site id(s) of NRCS site(s) to grab metadata for. Default is 'SCAN:2221'. The user should note that it may take several minutes to download element level data for an individual NRCS network, e.g., SCAN.
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Value

A list of n dataframes comprising the element level metadata for n NRCS sites

Author(s)

Josh Roberti <jaroberti87@gmail.com>

References

Downloads <https://www.wcc.nrcs.usda.gov/web_service/AWDB_Web_Service_Reference.htm>

See Also

Currently none

Examples

```
grabNRCS.elements(site_id='SCAN:2221')
```

grabNRCS.meta

grabNRCS.meta

Description

A search tool that grabs site level metadata for NRCS networks: SCAN, SNOTEL, SNOTEL-LITE, SNOW, MPRC, and OTHER

Usage

```
grabNRCS.meta(ntwrks = "SCAN", cnvrt.elev = FALSE)
```

Arguments

ntwrks Name(s) of NRCS network(s) to grab metadata for. Options are: 'SCAN', 'SNTL', 'SNTLT', 'SNOW', 'MPRC' and/or 'ALL'. If the user enters the term 'ALL,' site level metadata for all networks will be returned. Default is 'SCAN'

cnvrt.elev Optional. If set to TRUE, the elevation data will be converted from feet to meters. Default is set to FALSE, i.e., elevation data are output in units of feet.

Value

A list of n dataframes comprising the site level metadata for n NRCS networks

Author(s)

Josh Roberti <jaroberti87@gmail.com>

References

Downloads <https://www.wcc.nrcs.usda.gov/web_service/AWDB_Web_Service_Reference.htm>

See Also

Currently none

Examples

```
grabNRCS.meta(ntwrks="SCAN")
```

plotSCAN.windrose *plotSCAN.windrose*

Description

A wind rose plotting function for SCAN sites. For a given SCAN site ID, and requested period, a wind rose is output.

Usage

```
plotSCAN.windrose(scan_site, DayBgn, DayEnd, speed_bins = 10, dir_bins = 15,  
  units = c("metric", "imperial"))
```

Arguments

scan_site	The numeric ID for a valid SCAN site.
DayBgn	Specify the beginning date (as YYYY-MM-DD) for the returned data.
DayEnd	Specify the end date (as YYYY-MM-DD) for the returned data.
speed_bins	Optional. The number of bins to return wind speeds in. Defaults to 10.
dir_bins	Optional. The number of bins to return wind directions. Defaults to 36 bins (10 degree increments).
units	Optional. The format speed data are returned in (either "metric" or "imperial").

Value

Returns a wind rose for the requested parameters as a ggplot2 object.

Author(s)

Robert Lee <rhlee@colorado.edu>

References

Downloads <<https://wcc.sc.egov.usda.gov/reportGenerator>>

See Also

`grabNRCS.data()`

Examples

```
#Returns a wind rose for Nunn #1, for data for the period between Jan 1, 2017 and Feb 1, 2017.  
## Not run:  
plotSCAN.windrose(scan_site = 2017, DayBgn = "2017-01-01", DayEnd = "2017-02-01")  
  
## End(Not run)
```

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