SOP 84: Obtaining Climate Records

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1 Terrestrial Meteorological Data

1.1 Climate Data Online (CDO) system

There are several ways to obtain online climate data and the CDO-web interace is probably the easiest, using the following URL: `https://www.ncdc.noaa.gov/cdo-web/`.

Climate data, such as temperature and precipitation are recorded by station – so this is generally the observation unit. Even if you don't have a location of interest nailed down, this interface can help you find sites and evaluate the length of their records.

Below is a description of the steps to get data from a site:

Follow Link Browse Datasets

Expand Link Daily Summaries

Change Date Range Select the earliest data on the list to the present. Although your site might not have these records, it's easier to set the greatest range upfront.

Add Search Terms Select the state or country of interest.

Start Search Once you have initiated a search, the next window will give a list of records – click in these records to see what they might be composed of. Then decide which station you will want to evaluate.

Add to Cart Don't worry, there is no charge (yet!)

Station Detail & Data Flag Options Change to metric, dataset to include ppt and temperature.

Click 'Continue' Button NOTE: Common Errors:

Error – *Text order size is 3,948 Station Years, which exceeds our capacity of 1,000 Station Years. Please select fewer stations/locations, or reduce the date range.

If you get this error, you need to reduce the number of stations selected.

Complete Order Type in your email address and you will get a confirmation
relativley soon and the data in a day or so...

1.2 Historical Climatology Network-Daily (GHCND) data

https://www1.ncdc.noaa.gov/pub/data/cdo/documentation/GHCND_documentation.
pdf
ftp://ftp.ncdc.noaa.gov/pub/data/ghcn/daily/gsn/

1.3 rNOAA library tools

There is a relatively new tool to access NOAA data using an R package, called
rNOAA.

To use the tool, several dependent packages need to be installed and loaded,
including rNOAA. Next users need to get an API code, which is quite simple.

Using the package is relatively strait foreward, although I have been getting
timeout errors that I can't solve.

Here's a URL for a tutorial: https://ropensci.org/tutorials/rnoaa_
tutorial.html.

First, we prepare R by loading two libraries that we'll use to download
(rNOAA) and manipulate (plyr) the data.

```r
library('plyr')
library('rnoaa')
```

1.3.1 List of Cities

rNOAA has a simple function to list the cities:

```r
ncdc_locs(locationcategoryid='CITY', sortfield='name', sortorder='desc', token = 'qZqZPeprQI
```

```
## Error in curl::curl_fetch_memory(url, handle = handle):  Timeout
was reached
```

1.3.2 Getting Data

```r
ncdc_stations(datasetid='GHCND', locationid='FIPS:12017', stationid='GHCND:USC00084289', tok
```

```
## Error in curl::curl_fetch_memory(url, handle = handle):  Timeout
was reached
```