Acquiring weather data from ECCC with weathercan package

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Loading required packages

```
library(weathercan)
library(dplyr)
library(purrr)
```

Downloading station inventory from ECCC

```
#This function will be used to download a Station Inventory CSV file from ECCC
#The 'stations' data set included in this package contains
#station data downloaded when the package was last compiled.
#This function may take a few minutes to run.
# Update stations data frame
stations_dl()
#Date of ECCC update and date downloaded via weathercan
stations_meta()
```

Access Station data downloaded from ECCC

```
all_stations <- stations()
# Filter stations for Ontario
ontario_stations <-
  filter(stations(), interval == "day", prov == "ON") #removing normals gives you more stations
str (ontario_stations)
summary(ontario_stations)
#generating and savaing a csv file for Ontario stations
write.csv(ontario_stations, "ontario_stations.csv", row.names = FALSE)
```

Fetching weather data for Ontario station for a year

```r
print("Don't run me")
# Fetch daily weather data for each station and store in a list for each year
# this way we will get more stations per year and it takes a while to get data for one year
# the code below is for 2017. You can change the dates for any given year
weather_data <-
  lapply(ontario_stations$station_id, function(station_id) {
    daily_data <-
      weather_dl(station_id,
                 start = "2017-06-01",
                 end = "2017-09-30",
                 interval = "day")
    return(daily_data)
  })
# Combine the weather data for all stations into a single data frame
combined_data <- do.call(rbind, weather_data)

# Print the combined weather data
write.csv(combined_data, "2017.csv", row.names = FALSE)
#row.names = FALSE removes the first column which is the name of rows (1,2,3, ...)
```

Combining the weather data for all years in one file

```r
print("Don't run me")
library(tidyverse)
library(readr)

files <-
  c("2011.csv",
    "2012.csv",
    "2013.csv",
    "2014.csv",
    "2015.csv",
    "2016.csv",
    "2017.csv",
    "2018.csv",
    "2019.csv",
    "2020.csv",
    "2021.csv",
    "2022.csv")

data <-
  map_dfr(
    files,
    ~ read_csv(.x) %>% select(station_name, lat, lon, year, month, day, mean_temp, total_precip)
  )

# Check for parsing problems
file_problems <- problems(data)
if (any(row_number(file_problems) > 0)) {
  print(file_problems)
  stop("Parsing problems encountered. Please check the CSV files.")
}

write.csv(data, "weather.csv", row.names = FALSE)
```