

Exploring climate data

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load data

The Waukegan Regional Airport data will be used as the test data set for developing the load, or import, process. Remove data that is standard in the download.

```
KUGN <- read.csv(file = "./data/Waukegan/obs.csv",  
                 stringsAsFactors = FALSE)  
KUGN$STATION <- "Waukagen Airport"  
KUGN$NAME <- NULL
```

Format data

Format the date from a text field to a date data type and compute the Average Temperature (TAVG). This is not always computed for a station.

```
KUGN$DATE <- as.Date(KUGN$DATE,  
                     format = "%Y-%m-%d")  
KUGN$TAVG <- (KUGN$TMAX + KUGN$TMIN)/2
```

Set variable names

Change variable names to names that comply with the coding standard

```
Cnames <- c("Station",  
            "Date",  
            "Precip",  
            "AverageTemp",  
            "MaxTemp",  
            "MinTemp")  
names(KUGN) <- Cnames  
rm(Cnames)
```

norms

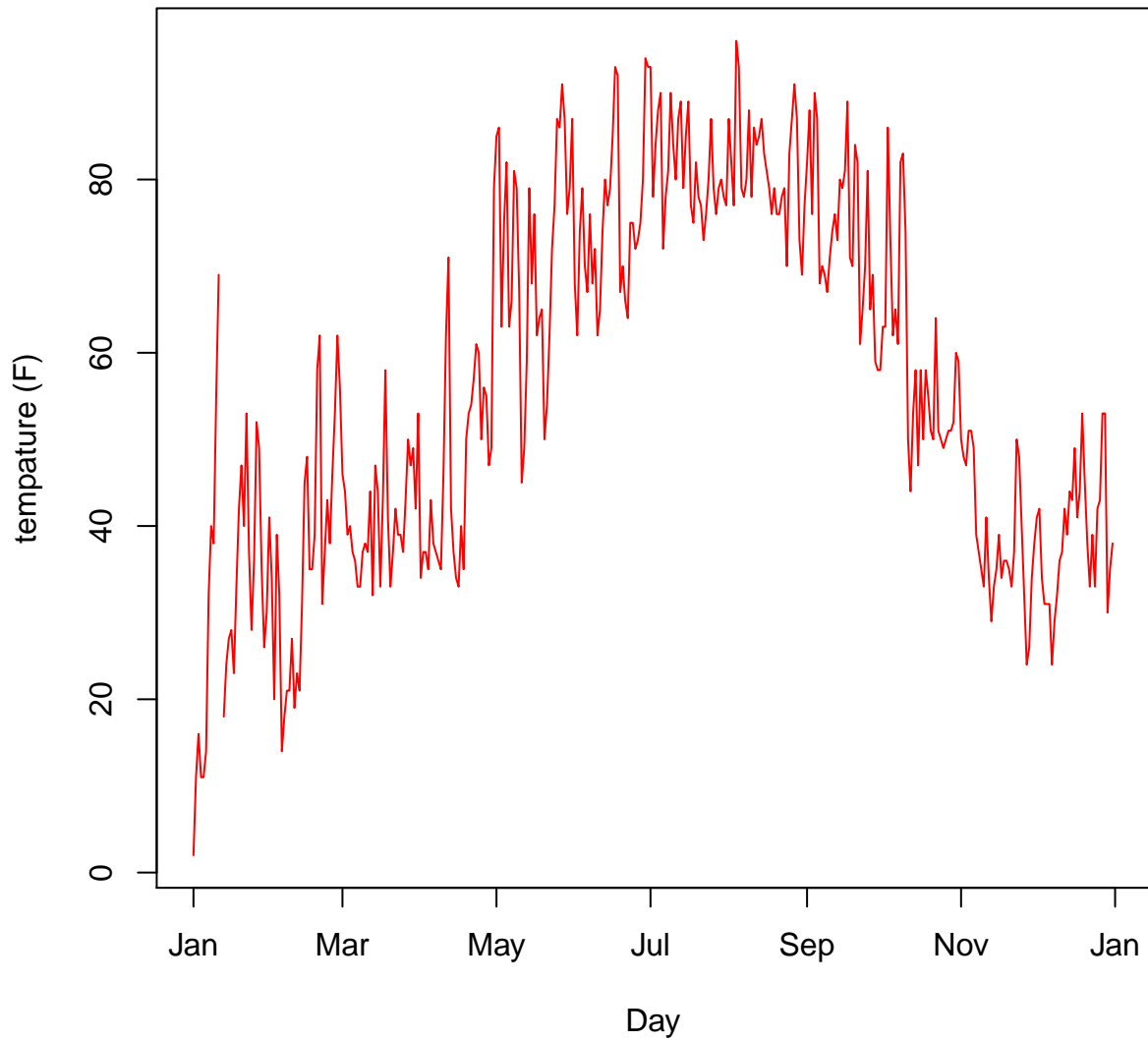
```
kugnNorms <- read.csv("./data/Waukegan/norms.csv",
                      stringsAsFactors = FALSE)
kugnNorms$STATION <- "Waukagen Airport"
kugnNorms$STATION_NAME <- NULL
kugnNorms$DATE <- as.Date(as.character( kugnNorms$DATE),
                          format = "%Y%m%d")
Cnames <- c("Station",
            "Date",
            "averageTemp",
            "averageDutrTemp",
            "normalMaxTemp",
            "normalMinTemp",
            "averageTempSD",
            "averageDutrTempSD",
            "maxTempSD",
            "minTempSD")
names(kugnNorms) <- Cnames
rm(Cnames)
```

graphical exploration

Couple of plots to check data

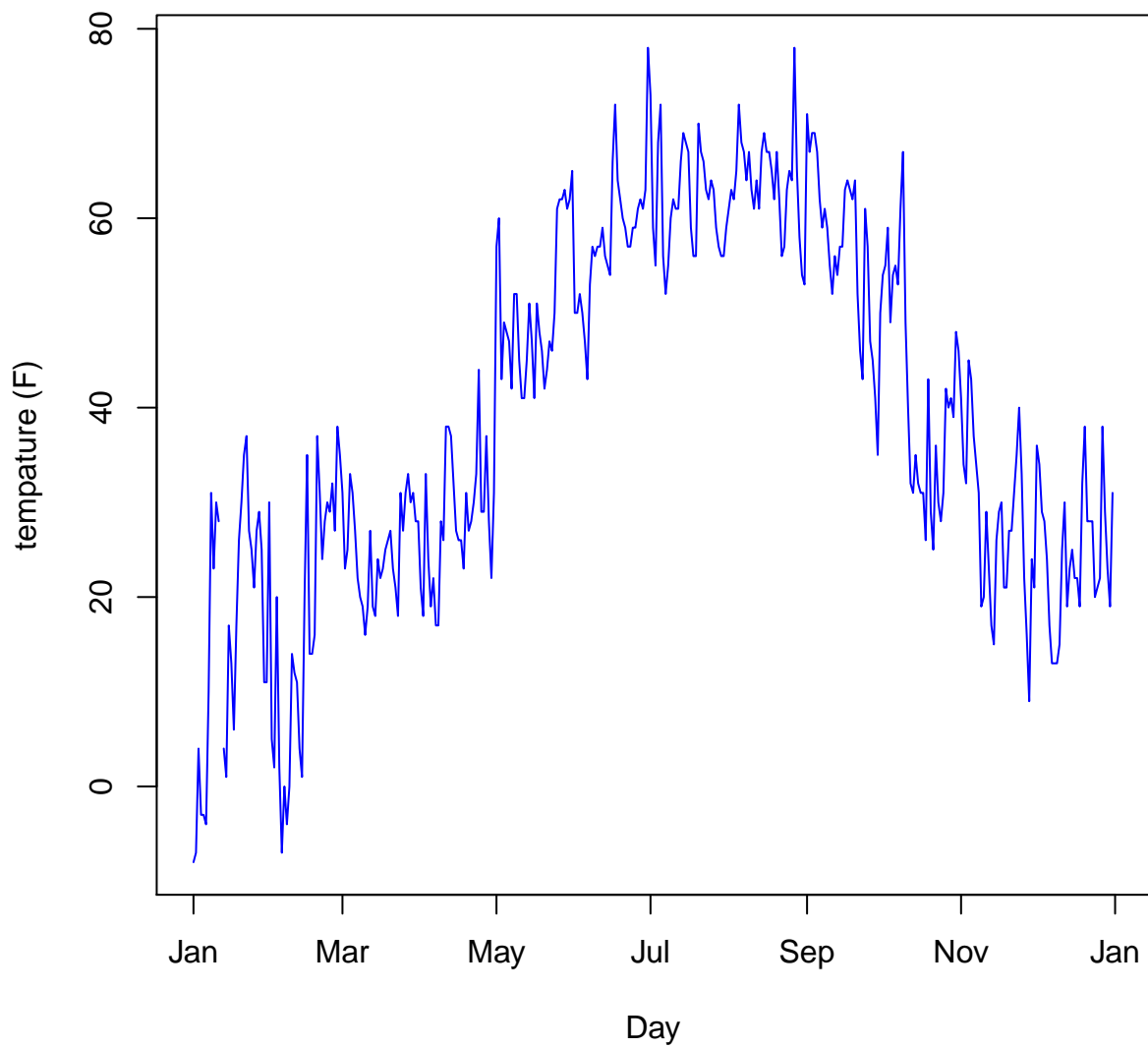
```
plot(x = KUGN$Date, y = KUGN$MaxTemp,
     type = "l",
     col = "red",
     main = "Daily Max Tempature",
     xlab = "Day",
     ylab = "tempature (F)")
```

Daily Max Tempature



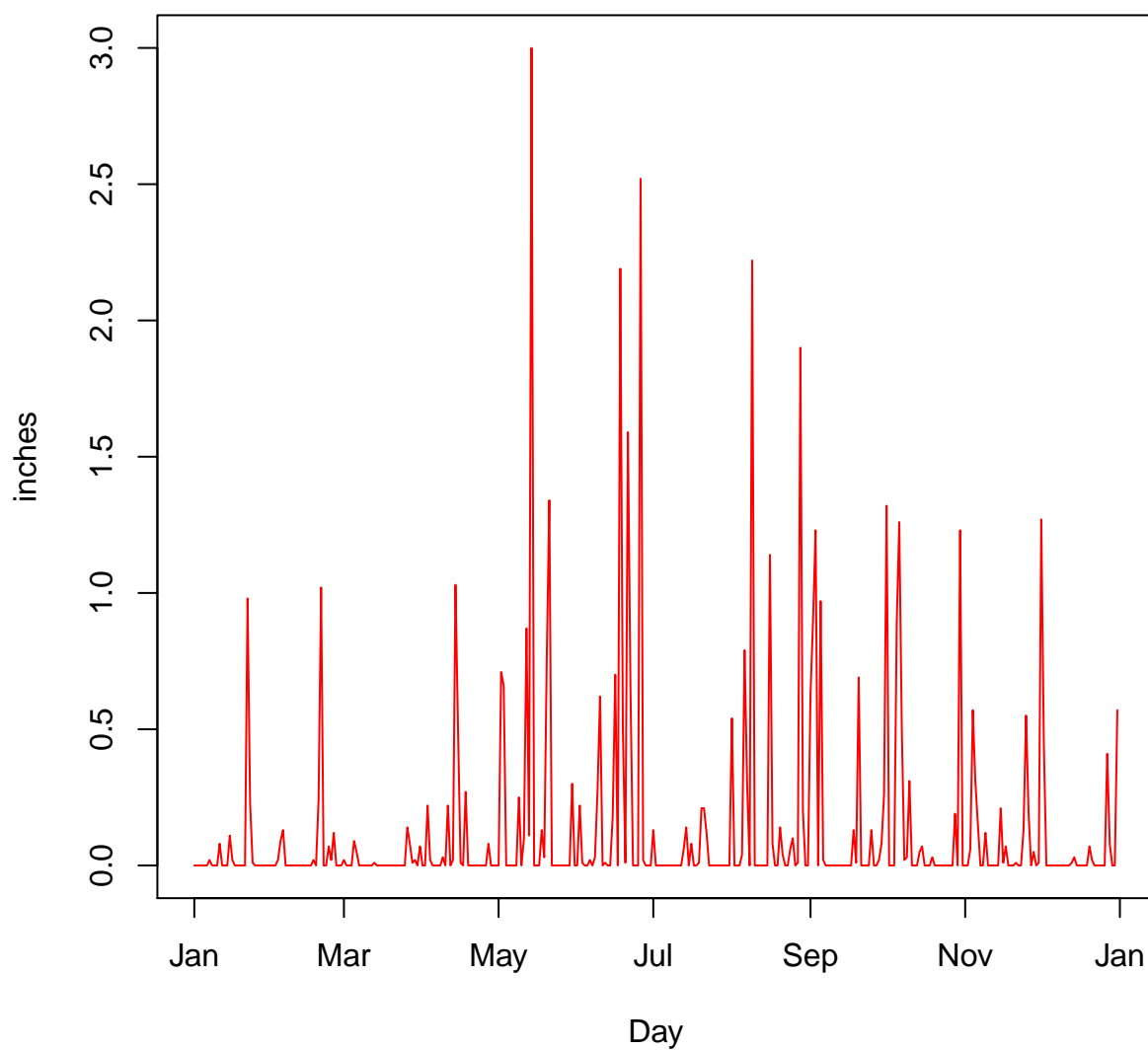
```
plot(x = KUGN$Date, y=KUGN$MinTemp,  
     type = "l",  
     col = "blue",  
     main = "Daily Min Tempature",  
     xlab = "Day",  
     ylab = "temperature (F)")
```

Daily Min Temperature



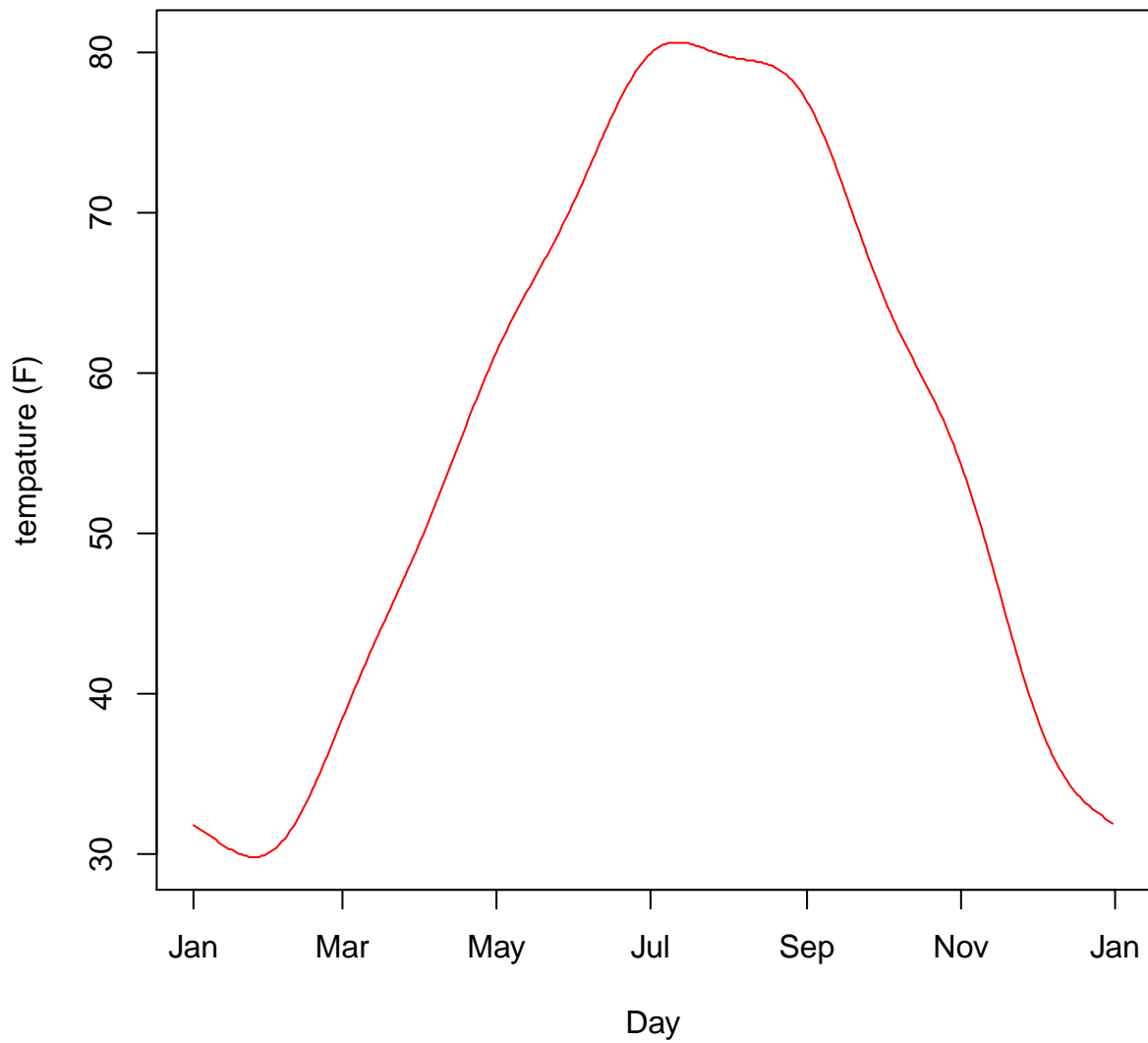
```
plot(x = KUGN$Date, y = KUGN$Precip,  
     type = "l",  
     col = "red",  
     main = "Daily precip",  
     xlab = "Day",  
     ylab = "inches")
```

Daily precip



```
plot(x= kugnNorms$Date, y=kugnNorms$normalMaxTemp,  
     type = "l",  
     col = "red",  
     main = "Normal Daily Max Tempature",  
     xlab = "Day",  
     ylab = "tempature (F)")
```

Normal Daily Max Tempature



```
plot(x= kugnNorms$Date, y=kugnNorms$normalMinTemp,  
     type = "l",  
     col = "blue",  
     main = "Normal Daily Min Tempature",  
     xlab = "Day",  
     ylab = "tempature (F)")
```

Normal Daily Min Temperature

