Climatograph

```
library(tidyverse)
library(lubridate)
source("../R/functions.R") # load functions from functions.R file
```

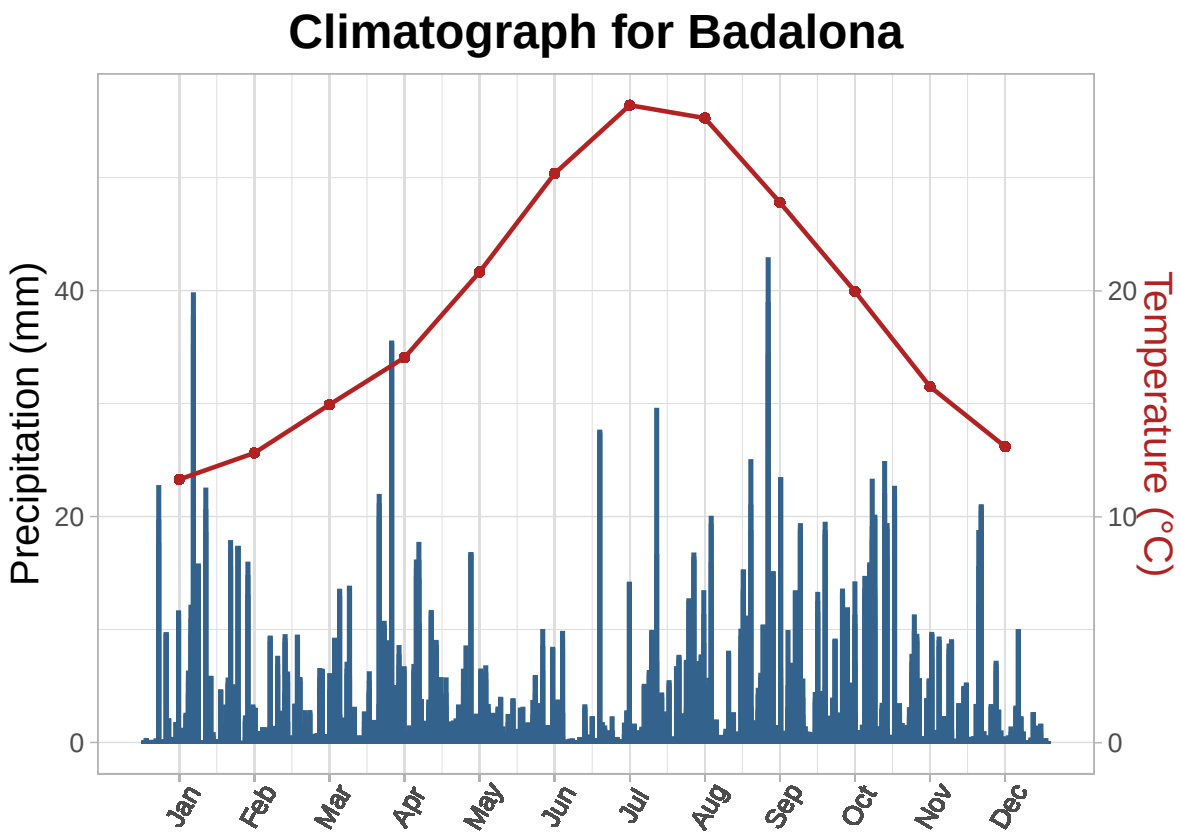
```
# Read rds files by species
Files <- list.files("../data/ClimateData", pattern = '*.rds', full.names = T)
Files
```

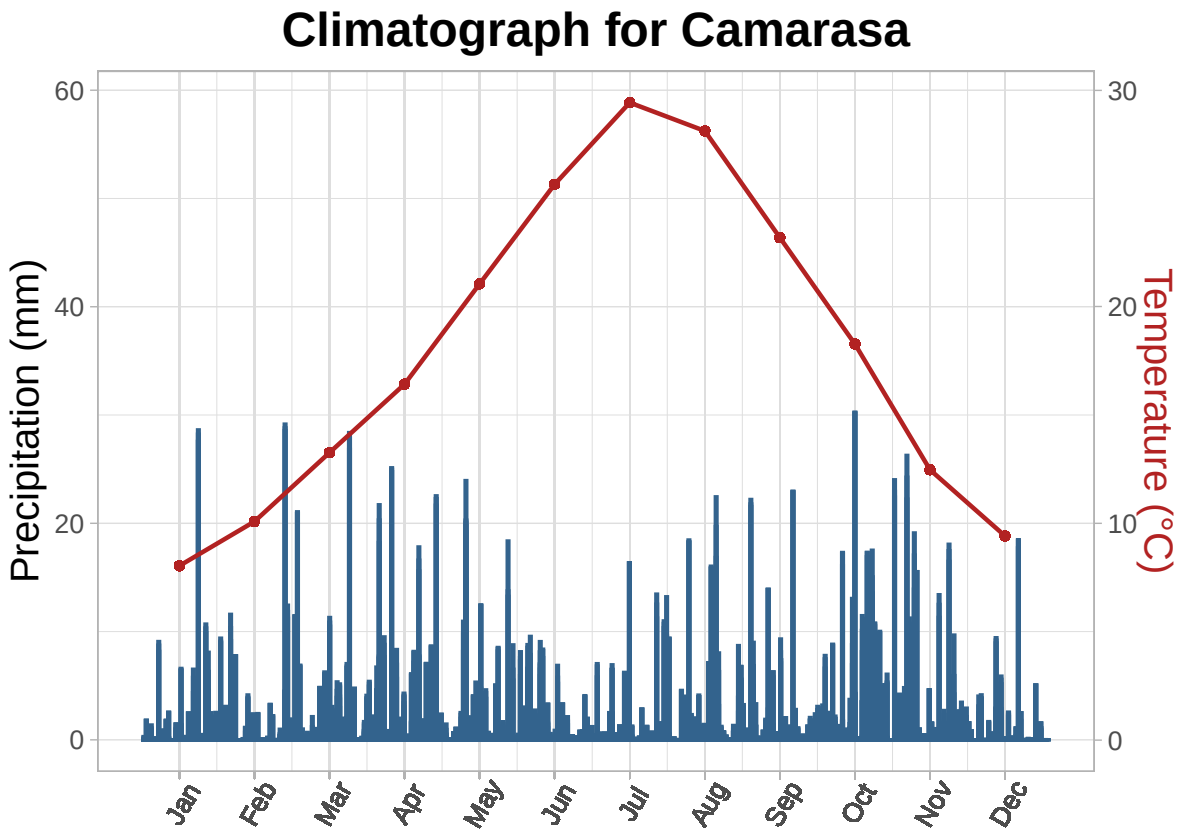
```
## [1] "../data/ClimateData/Badalona_tmpprec.rds"
## [2] "../data/ClimateData/Camarasa_tmpprec.rds"
```

```
# Climatograph by site
# --------------------
for(file in Files) {
  data <- dateinfo_cols(file) # add columns using dateinfo_cols() in functions.R file
  metdata <- data %>%
    group_by(mon)  %>%
    mutate(value_t2m = (value_t2m - 273.15),  # Convert temperature to degrees Celsius (°C)
           value_tp = (value_tp * 1000),   # Transform precipitation units from m to mm
           meanT = mean(value_t2m, na.rm = T))

  clim <- ggplot(metdata,
                 aes(x = DoY,
                     y = value_tp,
                     col = "value_tp"))
  clim <- clim + geom_col(color = "#33638DFF",
                          fill = "#33638DFF",
                          position = "dodge",
                          alpha = 0.1)
  clim <- clim + geom_line(aes(x = (mon/0.033)-15, # -15: position  middle of the month
                               y = meanT*2,
                               group = long),
                           color = "#B22222",
                           size = 0.8)
  clim <- clim + geom_point(aes(x = (mon/0.033)-15,
                                y = meanT*2),
                            size = 1.2,
                            color = "#B22222")
  clim <- clim + theme_light()
  clim <- clim + theme(plot.margin = unit(c(0.2, 0.5, -0.2, 0.5), "cm"))
  # Axis text
  clim <- clim + scale_x_continuous(breaks = (metdata$mon/0.033)-15, labels = metdata$MonthLabel)
  clim <- clim + scale_y_continuous("Precipitation (mm)",
                                    sec.axis = sec_axis(~./2, name = "Temperature (°C)"))
  clim <- clim + theme(axis.text.x = element_text(size = 10, angle = 60, vjust = 0.7))
```

```
clim <- clim + theme(axis.text.y = element_text(size = 10))
# Axis titles
clim <- clim + theme(
  axis.title.y = element_text(size = 15),
  axis.title.y.right = element_text(color = "#B22222", size = 15))
# Axis labels
clim <- clim + labs(x = " ")
# Plot title
sitename = gsub("_.*", "", gsub(".*/","", file))
clim <- clim + ggtitle(paste0("Climatograph for ", sitename))
clim <- clim + theme(plot.title = element_text(size = 18, face = "bold", hjust = 0.5))
print(clim)
}
```




Climatograph for Camarasa
Precipitation (mm)
Temperature (°C)
60
40
20
0
30
20
10
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec