

# Some Notes on Time Series

```
#load packages
library(tidyverse)
library(lubridate)

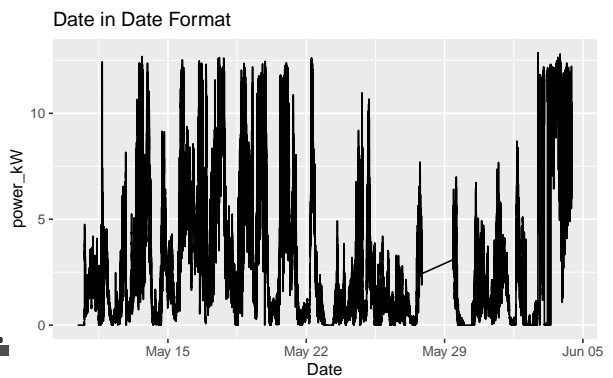
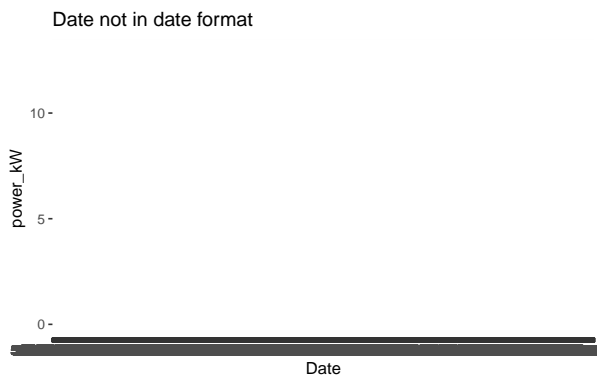
#load data
power <- read.csv("../data/power.csv")
```

## Date Formats are IMPORTANT

```
ggplot(power, aes(x=Date, y=power_kW)) +  
  geom_line() +  
  ggtitle("Date not in date format")
```

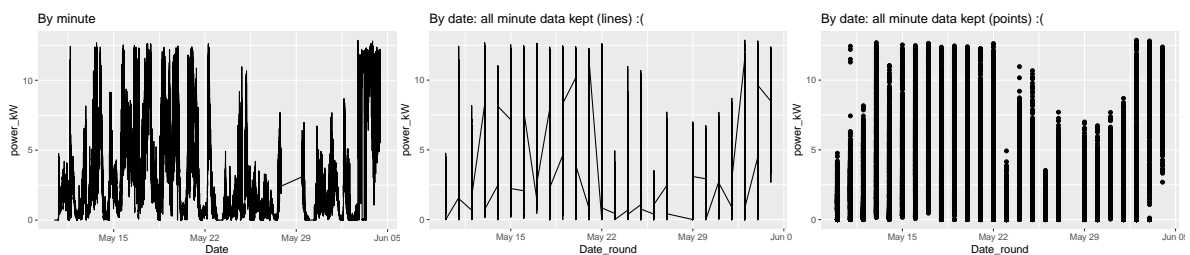
`geom\_line()`: Each group consists of only one observation.  
i Do you need to adjust the group aesthetic?

```
power <- power %>%  
  mutate(Date = mdy_hm(Date))  
  
ggplot(power, aes(x=Date, y=power_kW)) +  
  geom_line() +  
  ggtitle("Date in Date Format")
```



## Should we summarize the data? How?

```
power %>%
  ggplot(aes(x=Date, y=power_kW)) +
  geom_line() +
  ggtitle("By minute")
power %>%
  mutate(Date_round = floor_date(Date, unit="day")) %>%
  ggplot(aes(x=Date_round, y=power_kW)) +
  geom_line() +
  ggtitle("By date: all minute data kept (lines) :(")
power %>%
  mutate(Date_round = floor_date(Date, unit="day")) %>%
  ggplot(aes(x=Date_round, y=power_kW)) +
  geom_point() +
  ggtitle("By date: all minute data kept (points) :(")
```



## Over what time period should we summarize?

```
power %>%
  ggplot(aes(x=Date, y=power_kW)) +
  geom_line() +
  ggtitle("By minute")
power %>%
  mutate(Year = year(Date), Month = month(Date), Day = day(Date)) %>%
  group_by(Year, Month, Day) %>%
  summarize(Total_power_kw = sum(power_kW)) %>%
  mutate(Date_round = make_date(year=Year, month=Month, day =Day)) %>%
  ggplot(aes(x=Date_round, y=Total_power_kw)) +
  geom_line() +
  ggtitle("By date: summarize by adding")
```

``summarise()`` has grouped output by 'Year', 'Month'. You can override using the ``.groups`` argument.

```
power %>%
  mutate(Year = year(Date), Month = month(Date), Day = day(Date), Hour=hour(Date)) %>%
  group_by(Year, Month, Day, Hour) %>%
  summarize(Total_power_kw = sum(power_kW)) %>%
  mutate(Date_round = make_datetime(year=Year, month=Month, day=Day, hour=Hour)) %>%
  ggplot(aes(x=Date_round, y=Total_power_kw)) +
  geom_line() +
  ggtitle("By hour: summarize by adding")
```

``summarise()`` has grouped output by 'Year', 'Month', 'Day'. You can override using the ``.groups`` argument.

