STA160-FinalR

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```
#load data and drop na
Fire_db <- read.csv("~/Downloads/STA160/Fire_db.csv",)
Fire_db[Fire_db==""] <- NA
new_df <- na.omit(Fire_db) # Remove NA on specific variables
```

Plot

```
# Libraries
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(plotly)
```

```
##
## Attaching package: 'plotly'
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

```
library(hrbrthemes)
```

```
## NOTE: Either Arial Narrow or Roboto Condensed fonts are required to use these them
es.
```

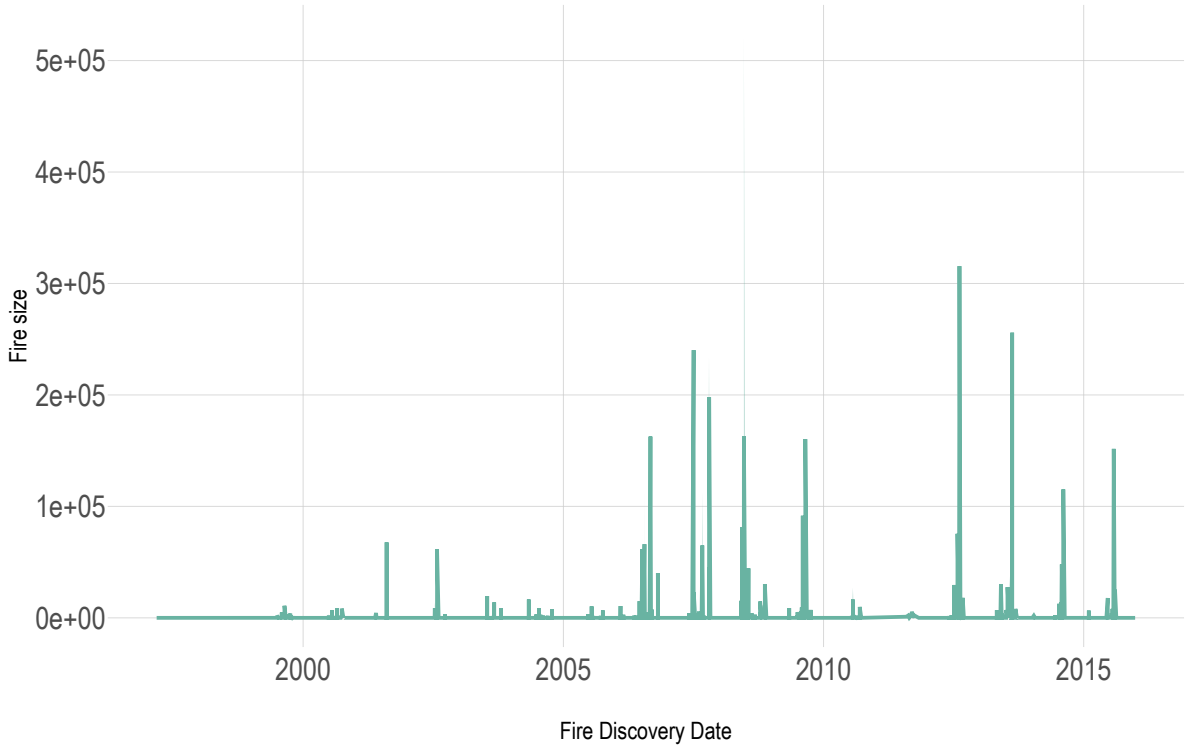
```
##       Please use hrbrthemes::import_roboto_condensed() to install Roboto Condensed
and
```

```
##       if Arial Narrow is not on your system, please see https://bit.ly/arialnarrow
```

```
# Load dataset from github

new_df$date.DISCOVERY_DATE. <- as.Date(new_df$date.DISCOVERY_DATE.)
new_df$date.CONT_DATE.<- as.Date(new_df$date.CONT_DATE.)
# Usual area chart
p <- new_df %>%
  ggplot( aes(x=date.DISCOVERY_DATE., y=FIRE_SIZE)) +
    geom_area(fill="#69b3a2", alpha=0.5) +
    geom_line(color="#69b3a2") +
    xlab("Fire Discovery Date") +
    ylab("Fire size") +
    theme_ipsum()

# Turn it interactive with ggplotly
p <- ggplotly(p)
p
```

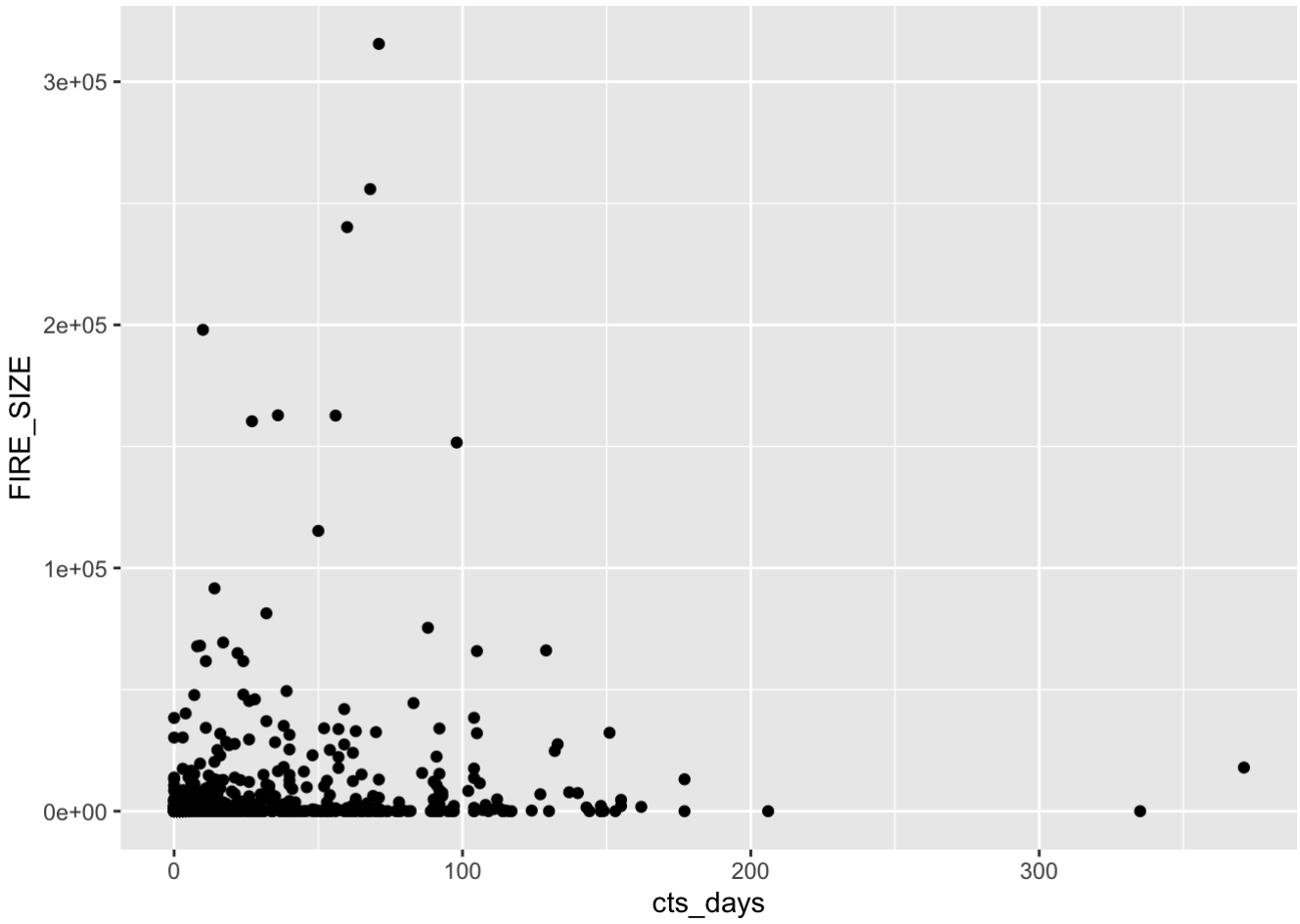


```
#change type to date
new_df$date.DISCOVERY_DATE. <- as.Date(new_df$date.DISCOVERY_DATE.)
new_df$date.CONT_DATE.<- as.Date(new_df$date.CONT_DATE.)

#fire days
days=new_df$date.CONT_DATE.-new_df$date.DISCOVERY_DATE.
#add to df
new_df$cts_days=days
```

```
#plot cts days vs fire size
library(ggplot2)
ggplot(data = new_df) +
  geom_point(mapping = aes(x = cts_days, y = FIRE_SIZE))
```

```
## Don't know how to automatically pick scale for object of type difftime. Defaulting
to continuous.
```



Standardized Regression

```
#import weather data combined fire data
all_com <- read.csv("~/Downloads/ClimateAnalysis-main/all_com.csv")
```

```
#change type to date
all_com$Date <- as.Date(all_com$Date)
all_com$date.CONT_DATE.<- as.Date(all_com$date.CONT_DATE.)

#fire days
days=all_com$date.CONT_DATE.-all_com$Date
#add to df
all_com$cts_days=days

lm_fire=lm(scale(FIRE_SIZE)~scale(FIRE_YEAR)+scale(Precip)+scale(average)+scale(cts_d
ays)+scale(LATITUDE)+scale(LONGITUDE),all_com)
summary(lm_fire)
```

```
##
## Call:
## lm(formula = scale(FIRE_SIZE) ~ scale(FIRE_YEAR) + scale(Precip) +
##     scale(average) + scale(cts_days) + scale(LATITUDE) + scale(LONGITUDE),
##     data = all_com)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.12996 -0.80745 -0.09974  0.37063  1.31646
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)       3.132e-13  2.885e-03    0.00        1
## scale(FIRE_YEAR)  2.196e-01  3.925e-03   55.94   <2e-16 ***
## scale(Precip)    -4.072e-02  2.988e-03  -13.63   <2e-16 ***
## scale(average)   -5.294e-02  4.109e-03  -12.88   <2e-16 ***
## scale(cts_days)   1.725e-01  3.060e-03   56.39   <2e-16 ***
## scale(LATITUDE)  -7.232e-01  1.215e-02  -59.52   <2e-16 ***
## scale(LONGITUDE) -3.660e-01  1.088e-02  -33.64   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8266 on 82090 degrees of freedom
## Multiple R-squared:  0.3167, Adjusted R-squared:  0.3167
## F-statistic:  6342 on 6 and 82090 DF,  p-value: < 2.2e-16
```