1 | Setup

```
library(tidyverse)
library(TSA)
```

2 | Data Sourcing

We first grab the data.

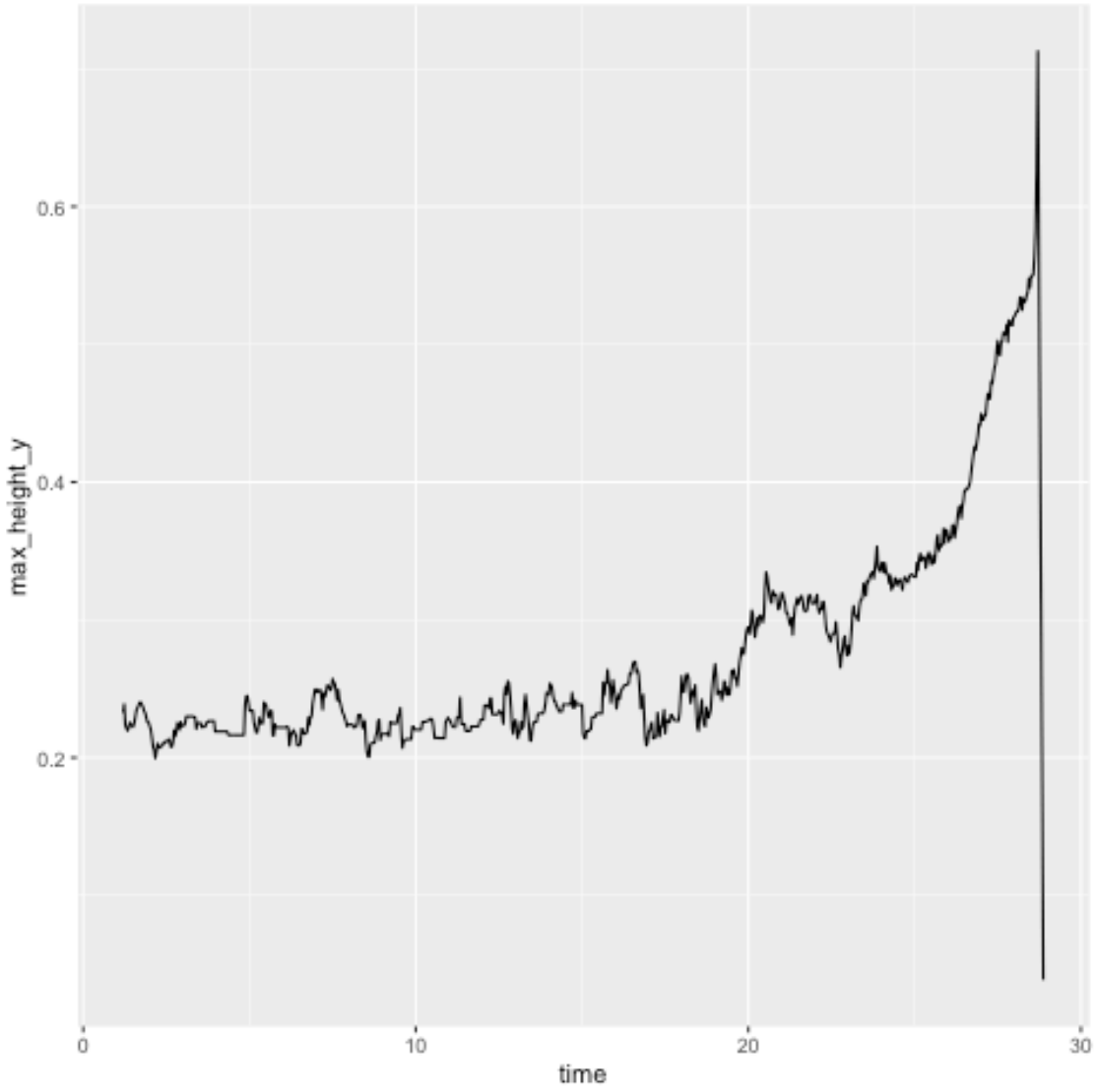
```
dataset_raw <- read.csv("./09162021_3rd_fl_jar_small_bead.csv")
dataset_tibble <- tibble(dataset_raw
#+begin_quote
#+end_quote
)

# rename tibble titles
dataset_tibble <- dataset_tibble %>% rename(time = Time..sec., max_height_x=Max.Height.X, max_height_y=
```

3 | Basic plotting

3.1 | Time vs. Max Height

Plot time against max height.

```
g <- dataset_tibble %>% ggplot()
g <- g + geom_line(aes(x=time, y=max_height_y))
g
```

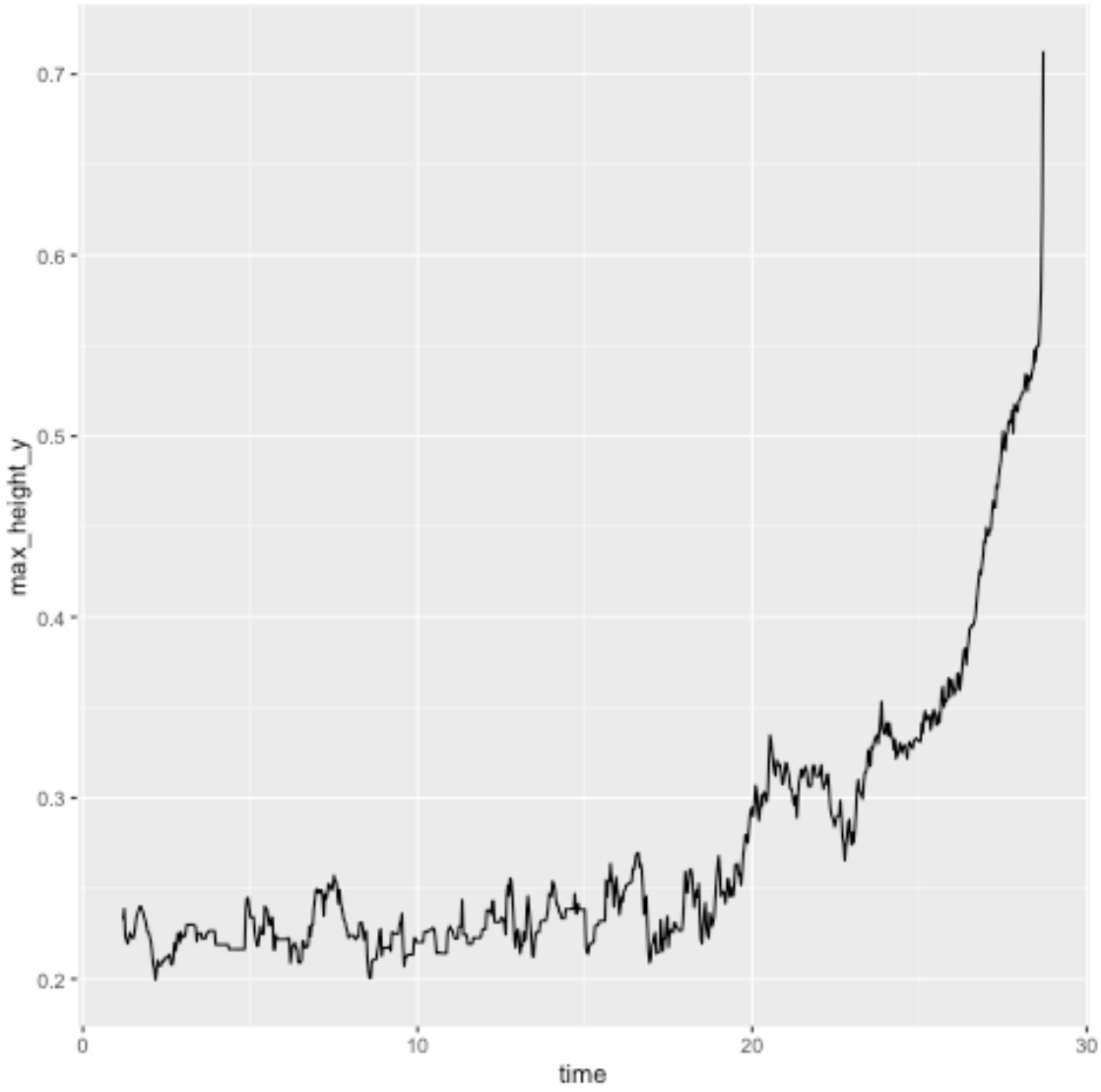


We should probably chop off the end bit, because that's just the chain flinging itself off.

```
dataset_sliced <- dataset_tibble %>% slice_head(n=which(dataset_tibble$max_height_y == max(dataset_tibbl
```

And plotting again…

```
g <- dataset_sliced %>% ggplot()
g <- g + geom_line(aes(x=time, y=max_height_y))
g
```

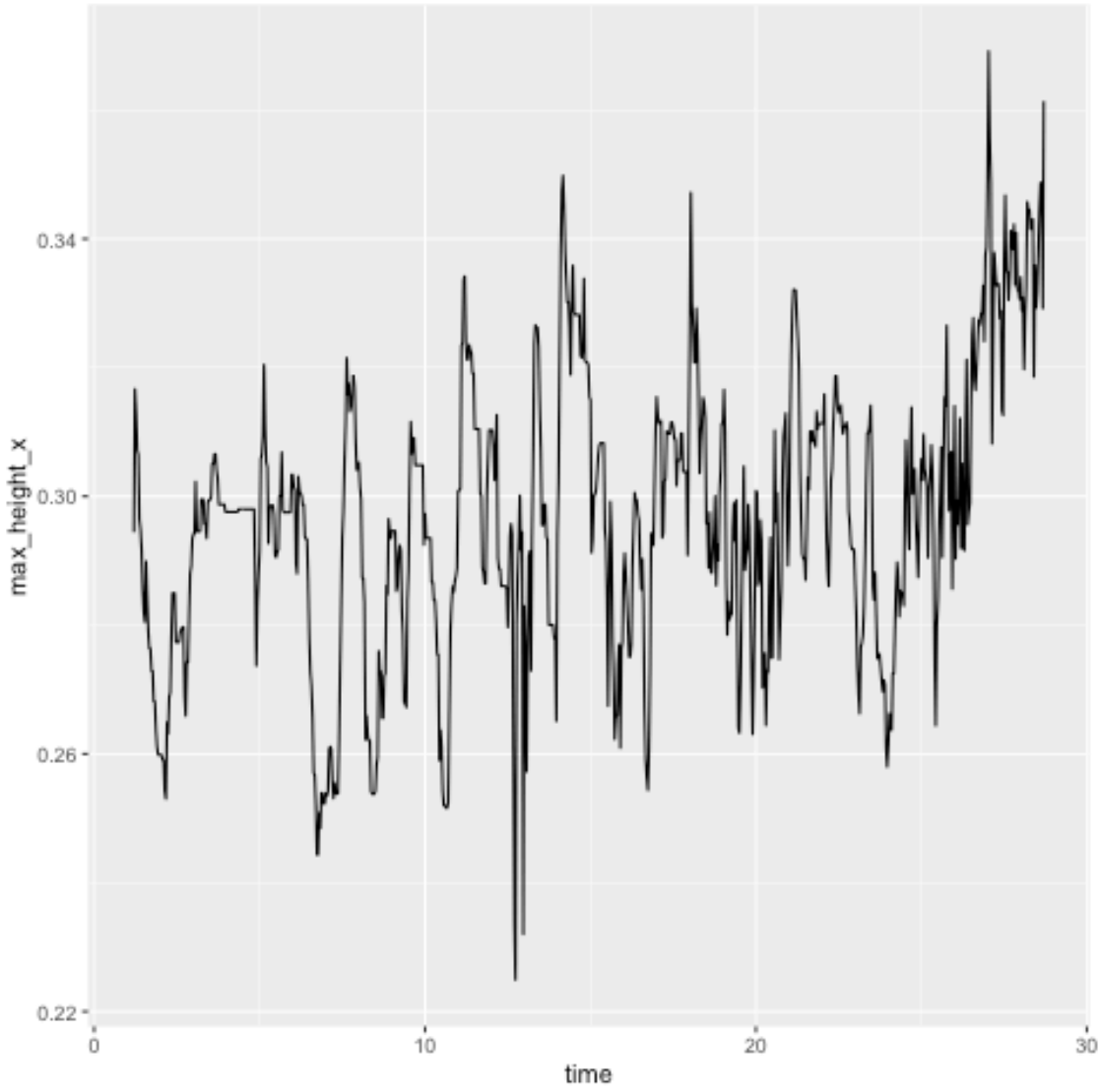


We will do the same thing

3.2 | **Time vs. X-Value at Max Height**

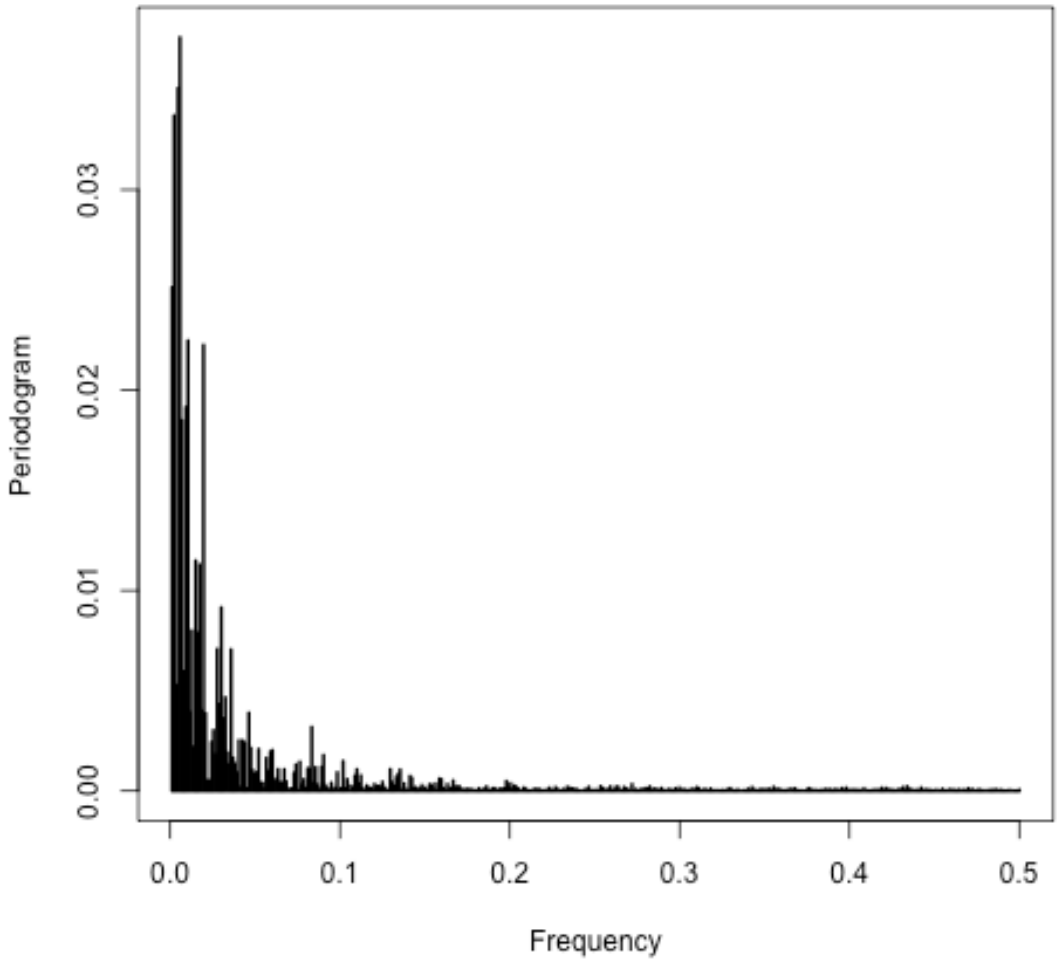
We will plot and slice the same bit too, but for the x-value.

```
g <- dataset_sliced %>% ggplot()
g <- g + geom_line(aes(x=time, y=max_height_x))
g
```



The wave could be ran through an fft.

```
dataset_sliced$max_height_x %>% periodogram()
```


Periodogram
0.00
0.01
0.02
0.03
0.0
0.1
0.2
0.3
0.4
0.5
Frequency