Time Series

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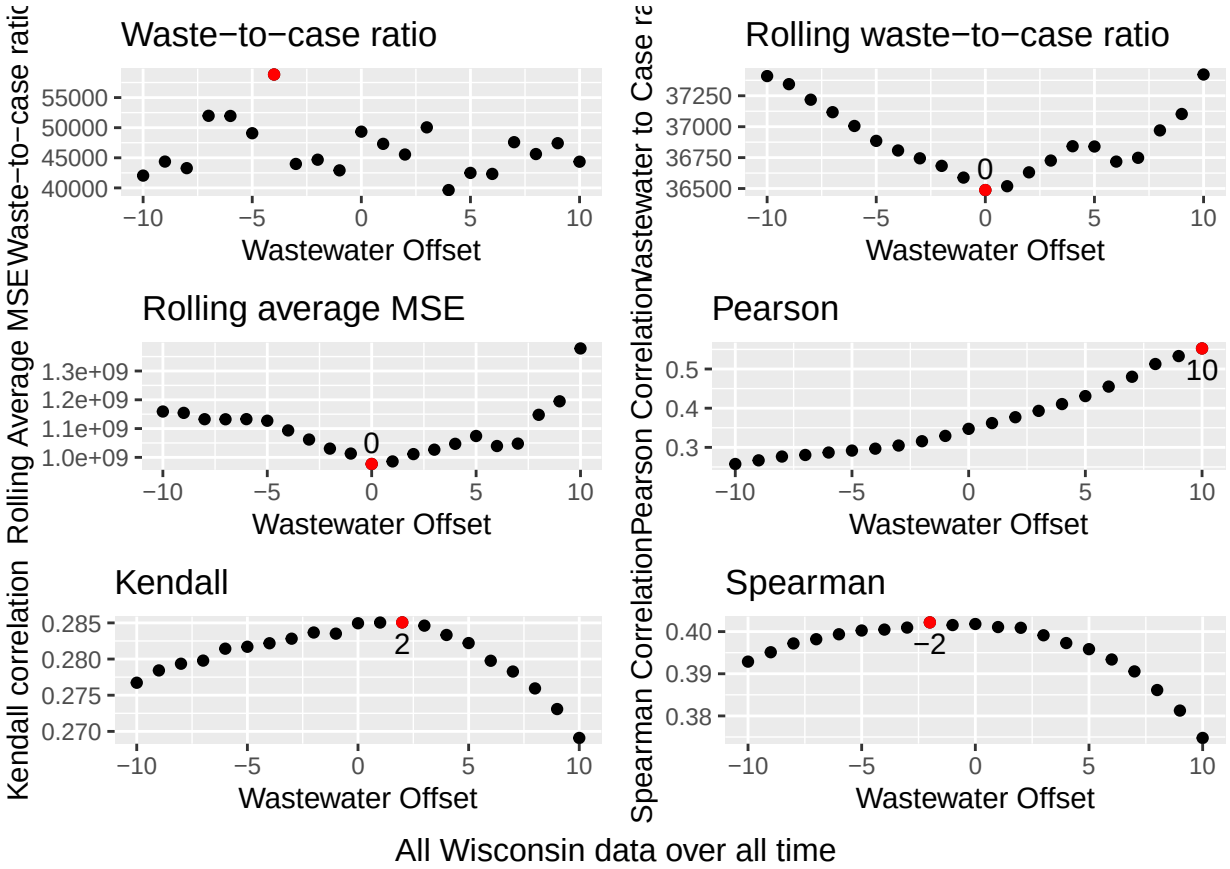
Time Series and Offset Analysis

How to find the offset between waste and case data

Pre merged waste and case data:

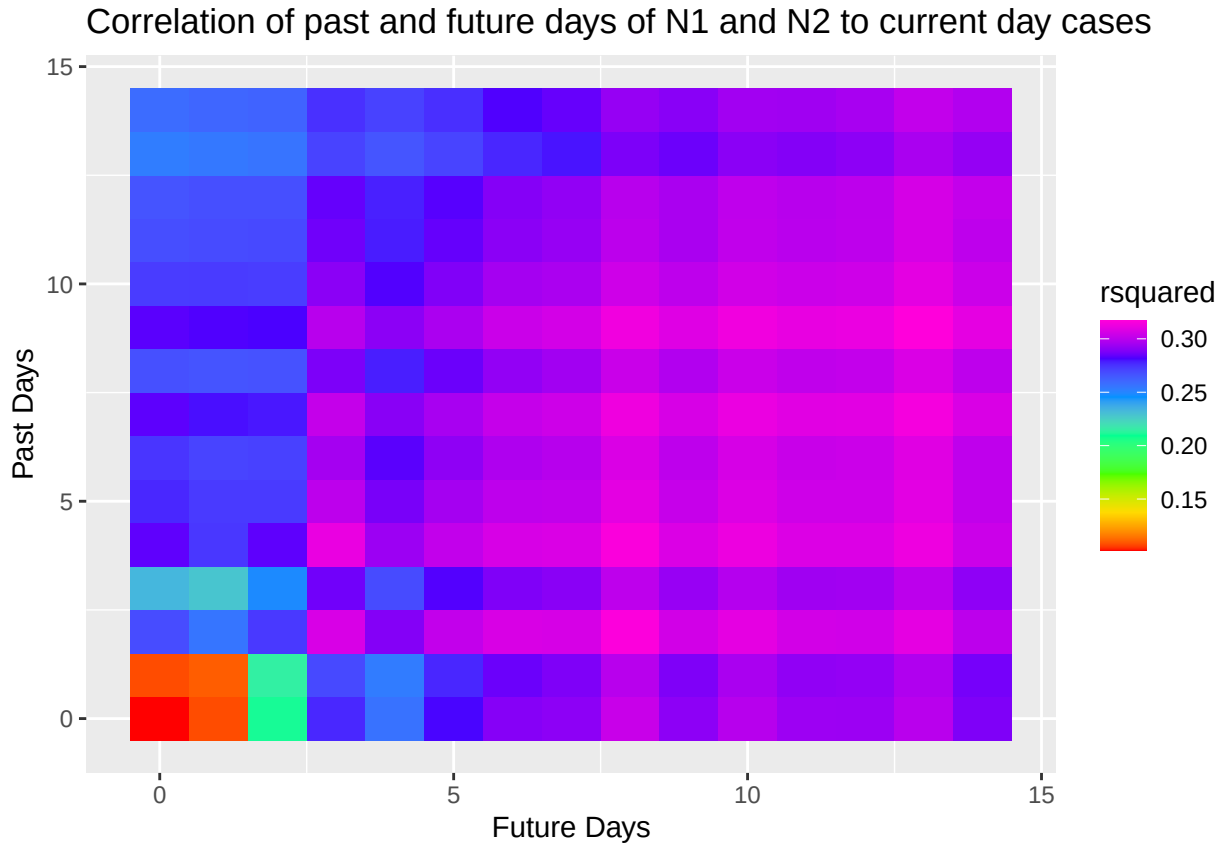
```
data(Case_data, package = "DSIWastewater")
totalcases <- Case_data %>%
  group_by(date) %>%
  summarise(sum_case = sum(conf_case)) %>%
  mutate(conf_case = roll_sum(sum_case,10,align = "right", fill = NA))

data(WasteWater_data, package = "DSIWastewater")

data(Covariants_data, package = "DSIWastewater")

data(pop_data, package = "DSIWastewater")

data(example_data, package = "DSIWastewater")
```

```
offsetDF <- OffsetDFMaker(10,as.Date("2020-08-01"), as.Date("2023-01-01"), Case_data, WasteWater_data)

OffsetDF_Plot(offsetDF, "All Wisconsin data over all time")
```



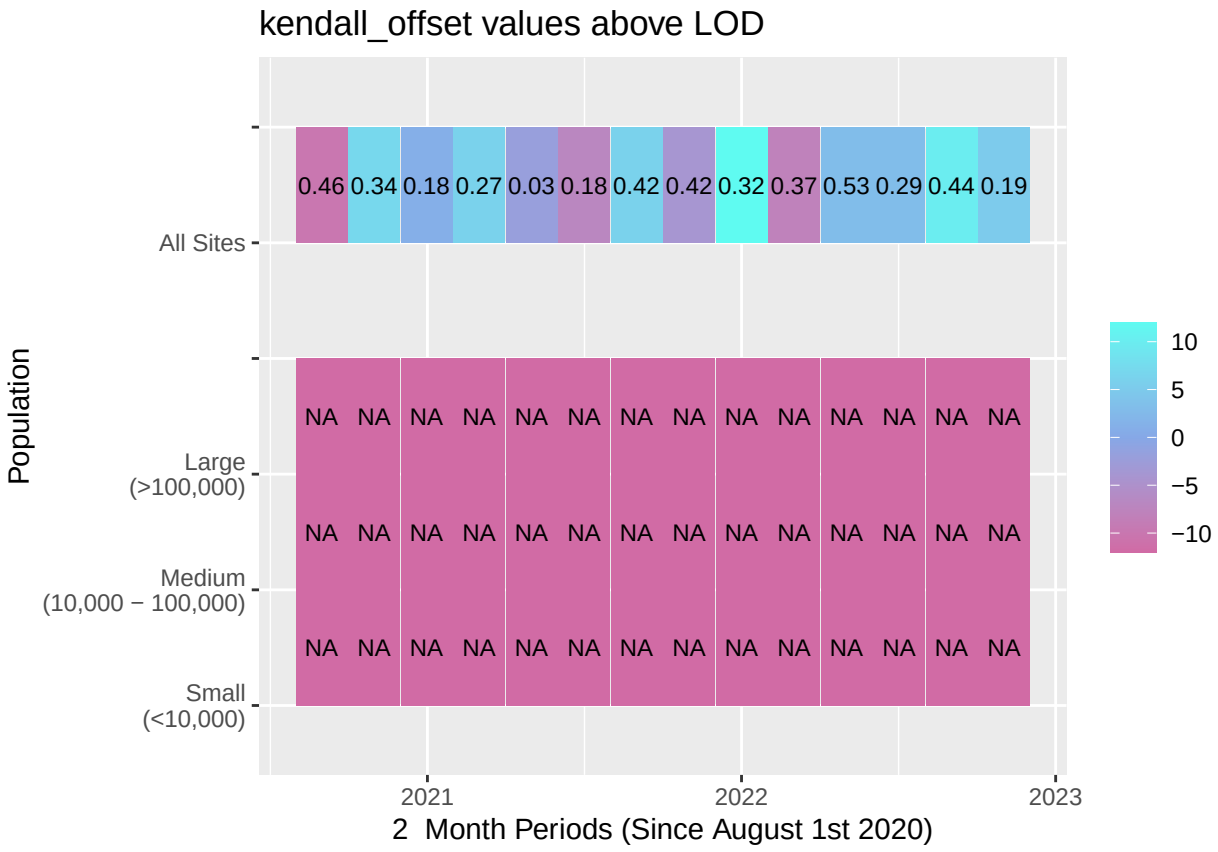

```
## TableGrob (4 x 2) "arrange": 7 grobs
##   z     cells    name                grob
## 1 1 (1-1,1-1) arrange       gtable[layout]
## 2 2 (1-1,2-2) arrange       gtable[layout]
## 3 3 (2-2,1-1) arrange       gtable[layout]
## 4 4 (2-2,2-2) arrange       gtable[layout]
## 5 5 (3-3,1-1) arrange       gtable[layout]
## 6 6 (3-3,2-2) arrange       gtable[layout]
## 7 7 (4-4,1-2) arrange text[GRID.text.3121]
```

```
heatmapcorfunc(Example_data)
```




```
covarstarts <- c(as.Date("2020-08-17"),
                 as.Date("2021-03-29"),
                 as.Date("2021-07-05"),
                 as.Date("2021-12-20"),
                 as.Date("2022-03-28"),
                 as.Date("2022-05-23"),
                 as.Date("2022-07-04"))
covarends <- c(as.Date("2021-01-18"),
               as.Date("2021-05-24"),
               as.Date("2021-12-06"),
               as.Date("2022-03-14"),
               as.Date("2022-05-09"),
               as.Date("2022-06-06"),
               as.Date("2022-11-07"))
covarnames <- c("Robin1",
                "Alpha.V1",
                "Delta",
                "Omicron.21K",
                "Omicron.21L",
                "Omicron.22C",
                "Omicron.22B")


OffsetHeatmap("kendall_offset",2,WasteWater_data,Case_data,"pop",TRUE,TRUE)
```

```
## Joining with `by = join_by(time)`
```


kendall_offset values above LOD
Population
All Sites
Large (>100,000)
Medium (10,000 − 100,000)
Small (<10,000)
0.46 0.34 0.18 0.27 0.03 0.18 0.42 0.42 0.32 0.37 0.53 0.29 0.44 0.19
NA NA NA NA NA NA NA NA NA NA NA NA NA NA
NA NA NA NA NA NA NA NA NA NA NA NA NA NA
NA NA NA NA NA NA NA NA NA NA NA NA NA NA
2021
2022
2023
2 Month Periods (Since August 1st 2020)
10
5
0
−5
−10