DHS downsampling Interceptor

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```
library(DSIWastewater)
library(zoo)
library(lubridate)
library(dplyr)
library(tidyr)
library(ggplot2)
```

```
source("DownSamplingFuncs.R")
```

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

Full_data <- DHSWaste_data%>%
  buildWorkSheet4()


intercepter <- c("Madison-P2-Central",
                 "Madison-P8-West",
                 "Madison-P11-SW",
                 "Madison-P7-SE",
                 "Madison-P18-NE"
                 )

InterceptorDates_data <- Full_data%>%
  filter(WWTP %in% intercepter)%>%
  pull(date)

Mad_data <- Full_data%>%
  filter(WWTP == "Madison MSD WWTF")%>%
  mutate(data = "Full")

Down_Mad_data <- Mad_data%>%
            filter(date %in% InterceptorDates_data)%>%
  mutate(data = "Down")
```

```
#Analyse day of week effect with new data
#see if mean changes on day of week
#push off to later
#a <- workset4_data%>%
#  group_by(date)%>%
#  summarise(m = mean(sars_cov2_adj_load_log10))
#1, 4
```

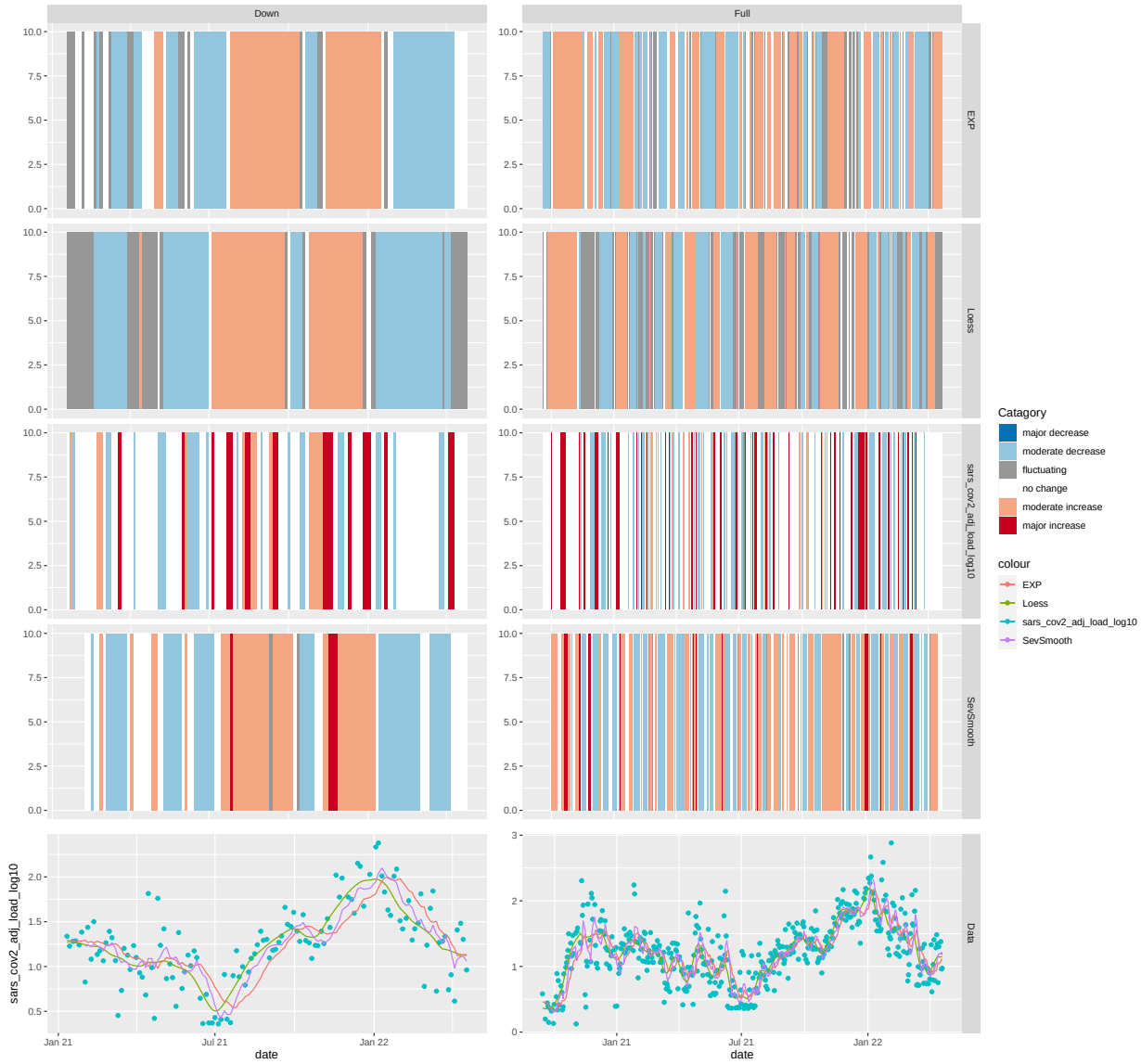
```
Full_data%>%
  filter(WWTP %in% intercepter)%>%
  mutate(Wday = wday(date))%>%
  group_by(Wday)%>%
  summarize(n = n())
```

```
## # A tibble: 2 x 2
##    Wday     n
##   <dbl> <int>
## 1     2   332
## 2     5   318
```

```
Full_Mad_data <- list(Mad_data, Down_Mad_data)%>%
    lapply(FUN = PrepDataSmoothings)%>%
    bind_rows()

Full_reg_data <- Full_Mad_data%>%
                          buildRegressionEstimateTable(
                               RunOn = c("sars_cov2_adj_load_log10",
                                "SevSmooth",
                                "EXP",
                                "Loess"),
                               SplitOn = "data")
```

```
createDHSMethod_Plot(Full_reg_data, Full_Mad_data,
                 PointVal = c( "sars_cov2_adj_load_log10"),
                 LineVal = c("Loess", "EXP", "SevSmooth"),
                 FacGridFormula = Method ~ data)
```




```
Messure_reg_estimates_data <- Full_reg_data%>%
  prepDataForMessure(BreakOn = "data", dataBase="Full")

Messure_data <- Messure_reg_estimates_data%>%
  group_by(Method, data)%>%
  mutate(diff = abs(Catagory - Loess),
         BigDiff = diff >= 2,
         vol = abs(Catagory-lag(Catagory)),
         Bigvol = vol>= 2)%>%
  summarise(diff = mean(diff),
            PerBigDiff = mean(BigDiff),
            vol = mean(vol, na.rm = TRUE),
            PerBigvol = mean(Bigvol, na.rm = TRUE)
            )
```

```
Messure_data%>%
  mutate(data = ifelse(data == "Down",3,7))%>%
  pivot_longer(col = -c(Method, data))%>%
  ggplot(aes(x = data, y = value))+
  geom_line(aes(color = Method))+
  facet_wrap(~name, scales = "free")
```