

# Assignment-3

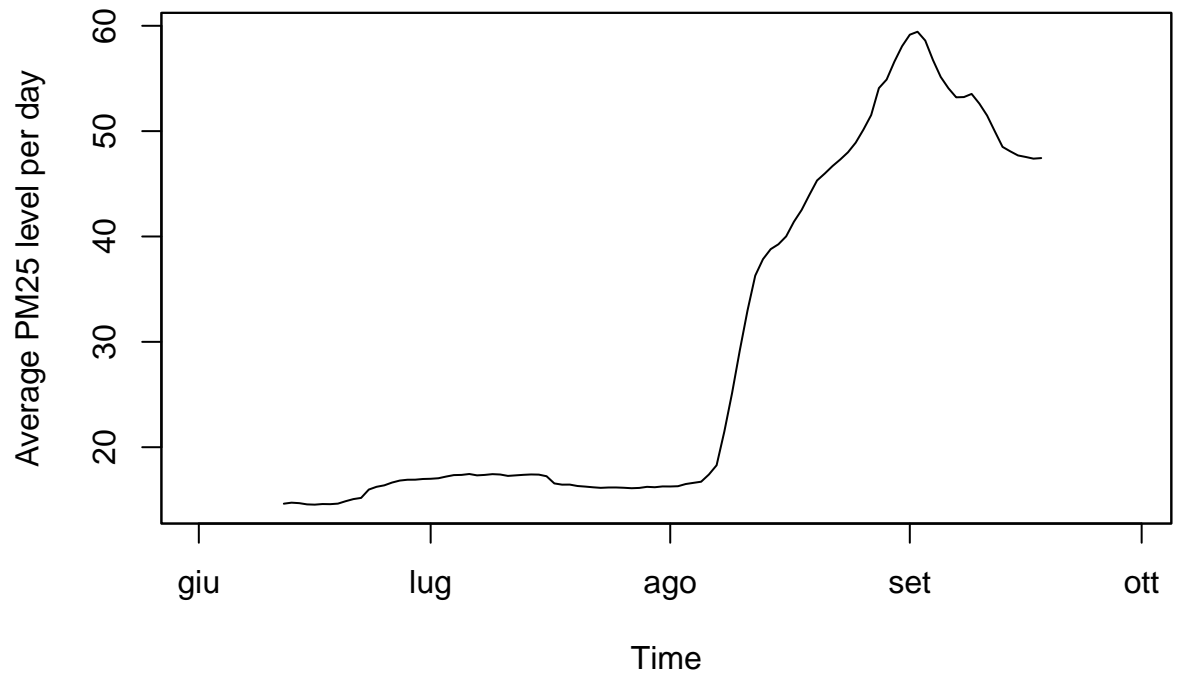
Group 22

Imanbayeva Sofya, Mazzi Lapo, Piras Mattia, Srivastava Dev

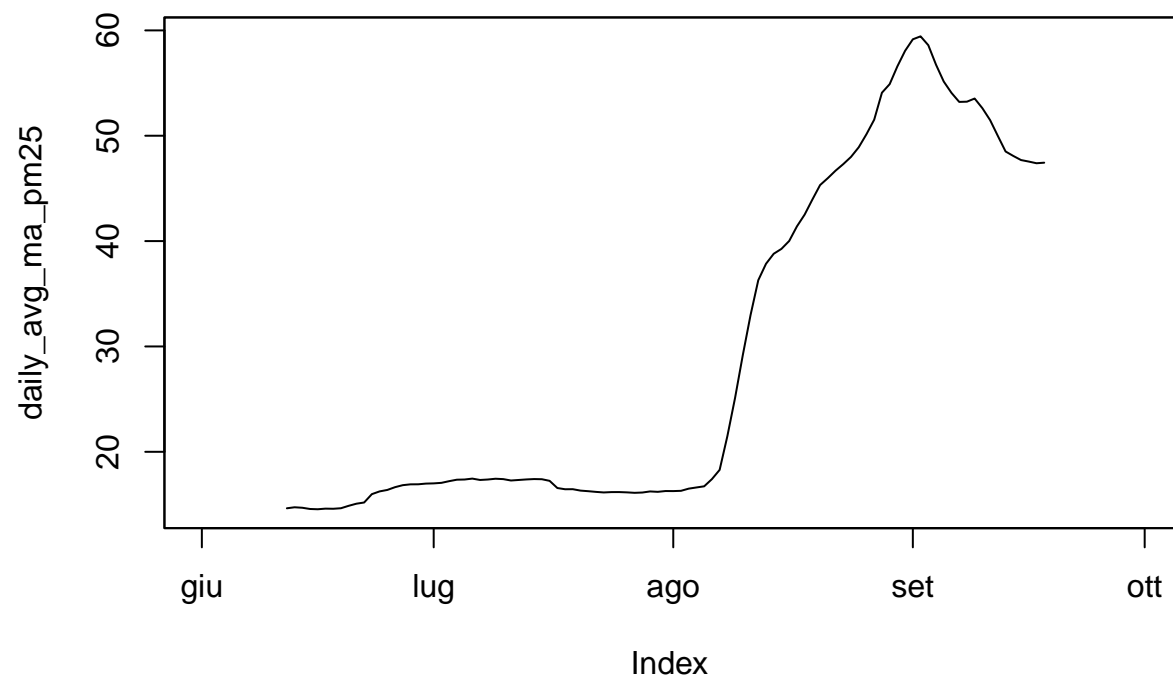
2023-03-31

```
## I seguenti oggetti sono mascherati da airdataset:  
##  
##      datetime, Latitude, Longitude, pm25, station_id, temp, time_n, wind
```

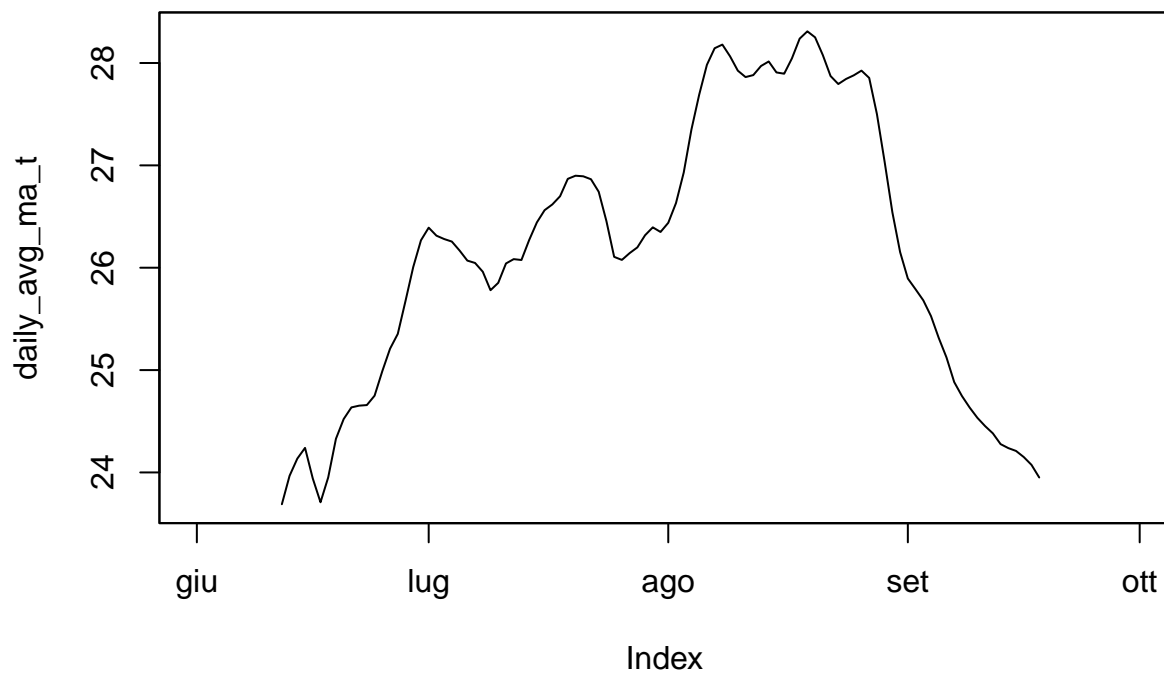
**Graph 1: Average PM25 levels at station 55, June–September 2020**

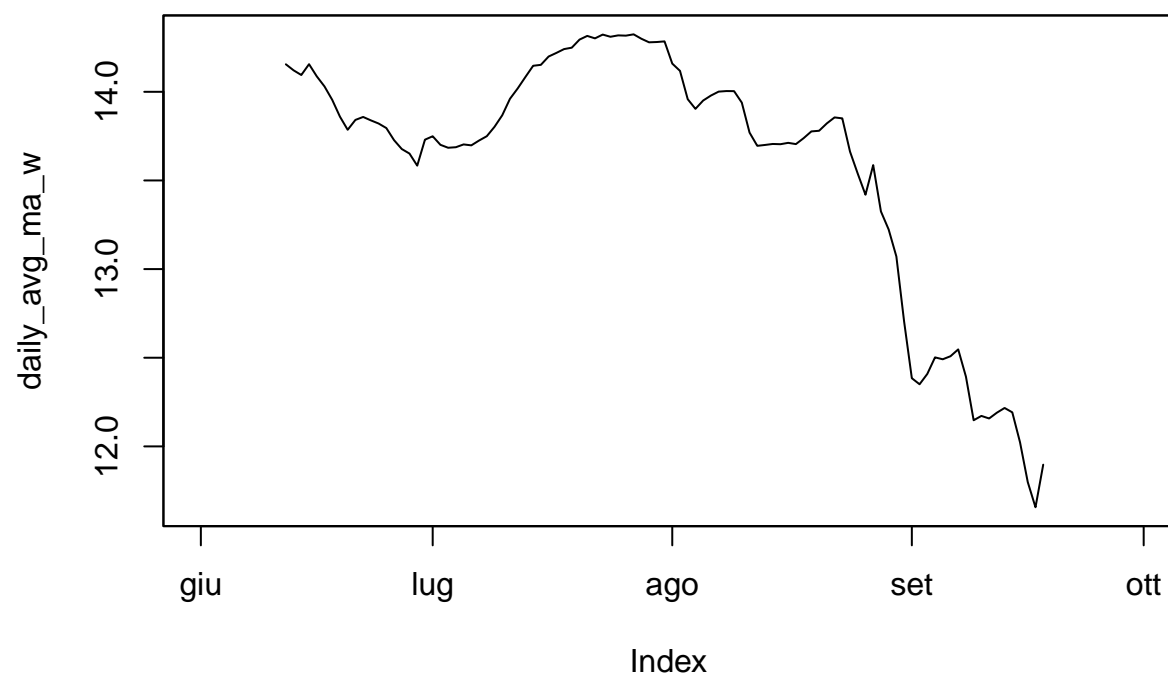


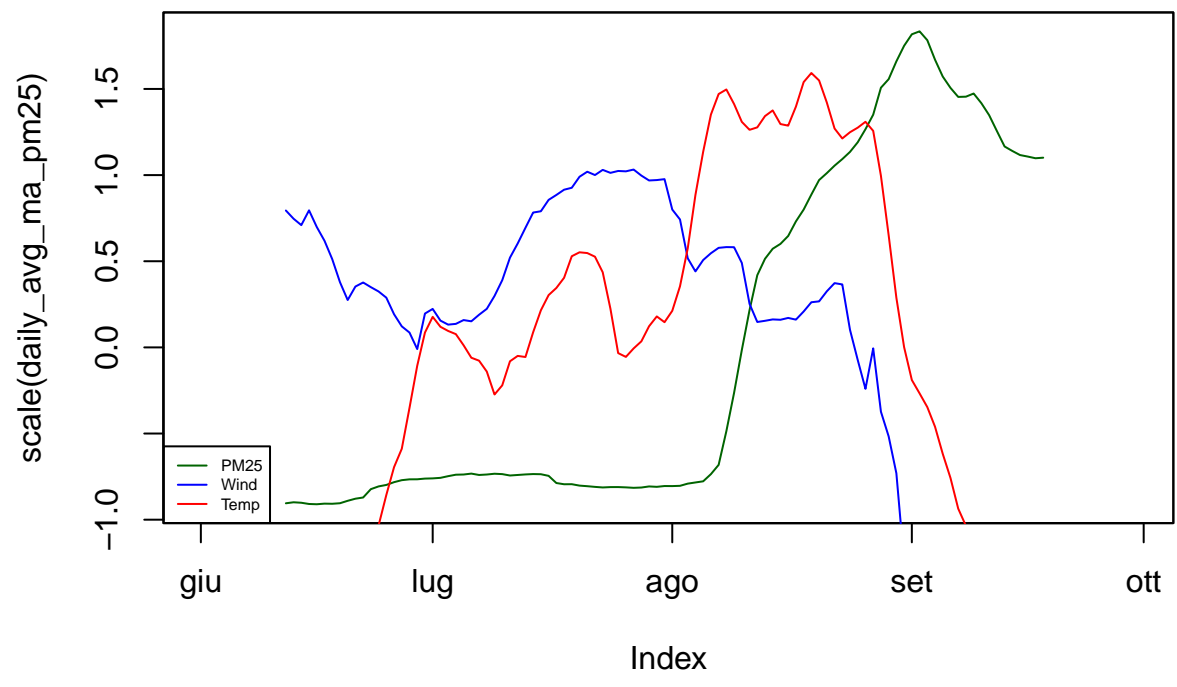
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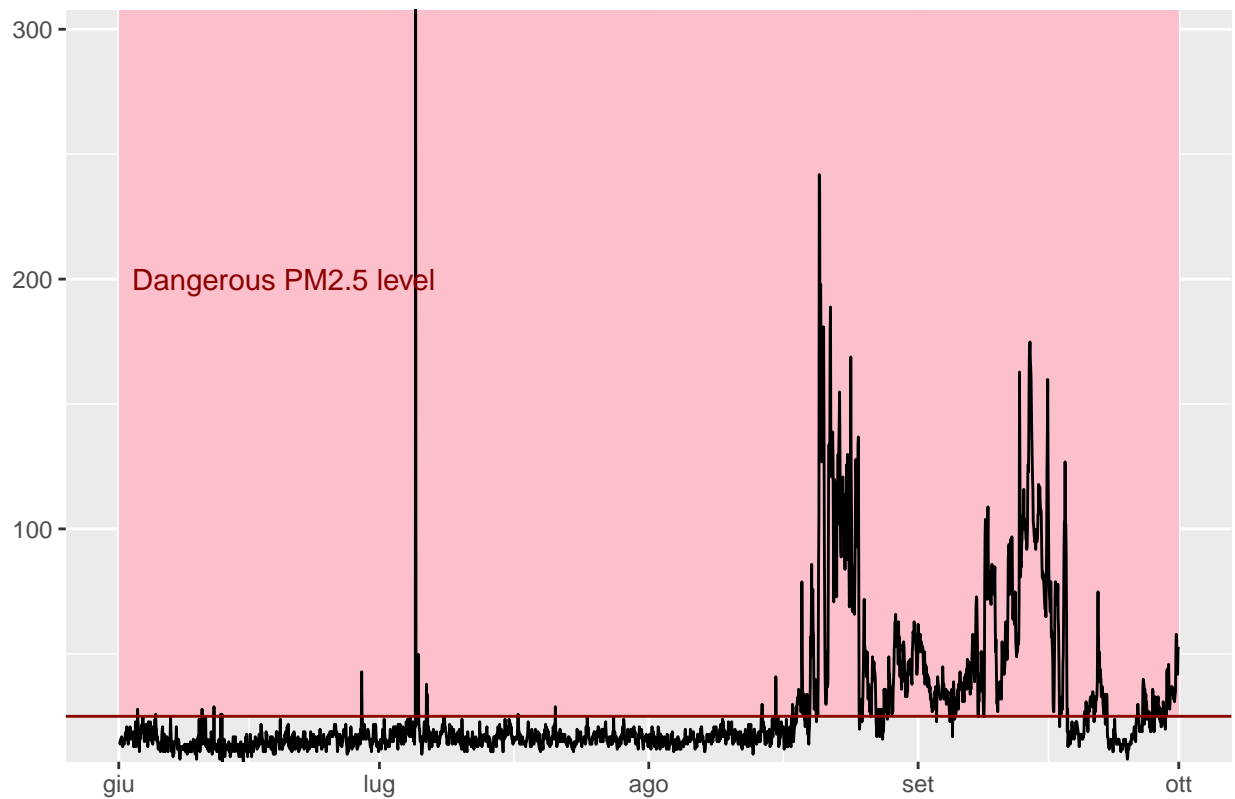
Moving average dramatically increases in the beginning of August from around 17 to its peak in the beginning of September at around 60 in its PM25 levels. The values slightly decrease in September.





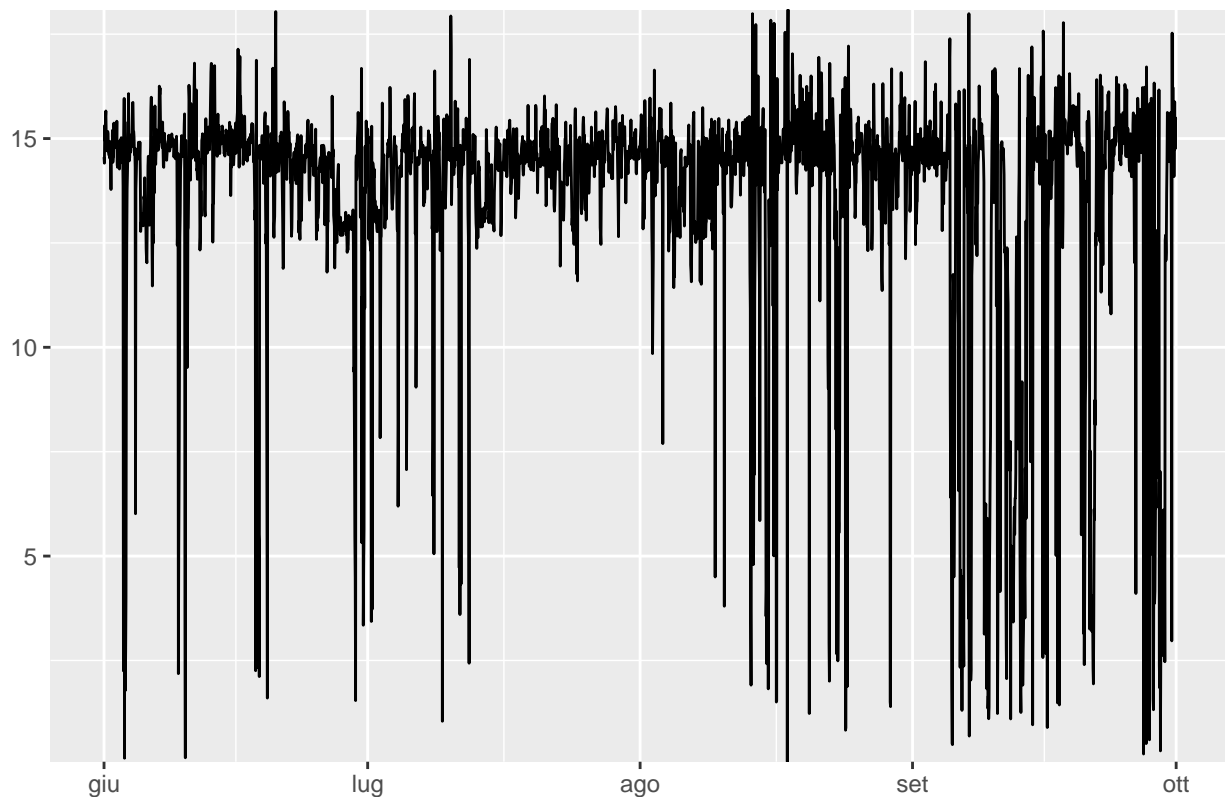


### PM2.5 levels at Station #55



Majority of measurements from June to mid-August are smaller than the prescribed limit with the exception of a peak of an outlying 307.81 in July. However, since then until October, the dynamic has changed with only a few days where the values staying within the limit constraints below 25. The peaks are high, probably resulted from fires, high temperatures and strong wind.

## Wind strength



Initial state probabilities model pr1 pr2 pr3 0.333 0.333 0.333

Transition matrix toS1 toS2 toS3 fromS1 0.333 0.333 0.333 fromS2 0.333 0.333 0.333 fromS3 0.333 0.333 0.333

Response parameters Resp 1 : gaussian Re1.(Intercept) Re1.sd St1 0 1 St2 0 1 St3 0 1

converged at iteration 58 with logLik: -9089.996

```
summary(fmodel)
```

Initial state probabilities model pr1 pr2 pr3 0 0 1

Transition matrix toS1 toS2 toS3 fromS1 0.957 0.043 0.000 fromS2 0.027 0.949 0.024 fromS3 0.000 0.007 0.993

Response parameters Resp 1 : gaussian Re1.(Intercept) Re1.sd St1 91.210 36.069 St2 33.247 8.068 St3 15.886 3.001

```
## Warning in .local(object, ...): Argument 'type' not specified and will default
## to 'viterbi'. This default may change in future releases of depmixS4. Please
## see ?posterior for alternative options.
```



