1. Data
000

2. Explorative Analysis
00000000

3. Modelling
000

4. Conclusions
000

Spatio-Temporal Analysis of PM10 in Nordrhein-Westfalen
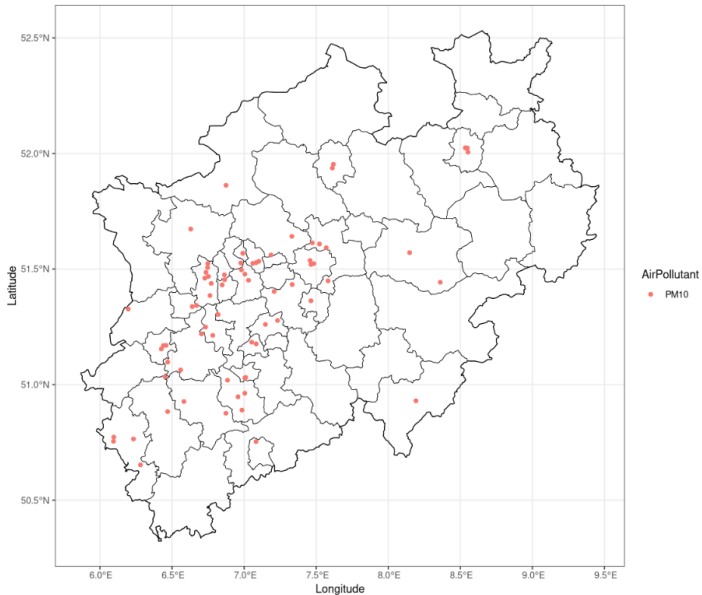
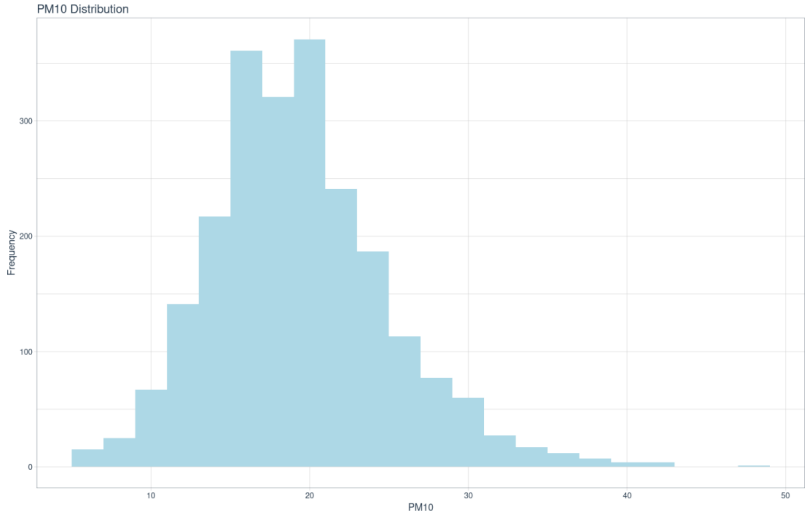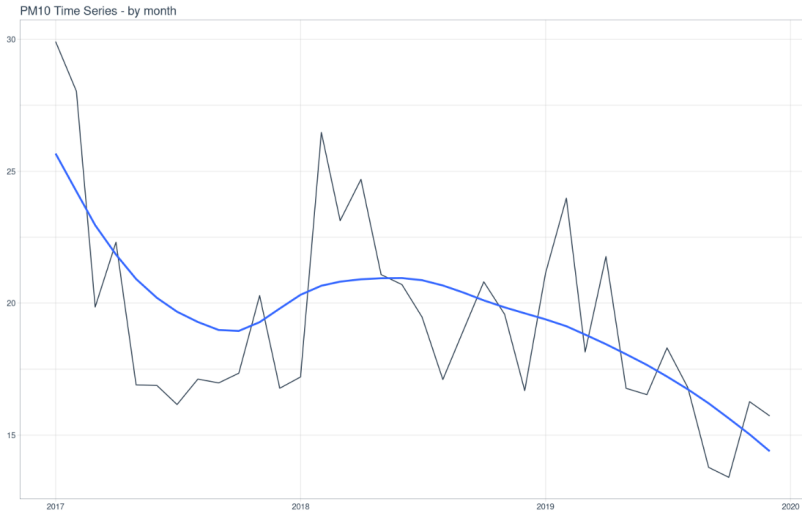## Caterina Daidone, Tamara Vasjlev, Marco Zanotti

University Milano-Bicocca

Contents

1. Data

PM10 Distribution

1. Data
000

2. Explorative Analysis
●0000000

3. Modelling
000

4. Conclusions
000

2. Explorative Analysis

1. Data
000

2. Explorative Analysis
○●○○○○○○

3. Modelling
000

4. Conclusions
000

PM10 Time Series - by month

1. Data
000

2. Explorative Analysis
00●00000

3. Modelling
000

4. Conclusions
000

PM10 Time Series - by station and month

1. Data
000

2. Explorative Analysis
00000000

3. Modelling
000

4. Conclusions
000

1. Data
000

2. Explorative Analysis
00000●000

3. Modelling
000

4. Conclusions
000

PM10 Autocorrelation

1. Data
000

2. Explorative Analysis
00000000

3. Modelling
000

4. Conclusions
000

PM10 - by station

PM10 - by station

1. Data
000

2. Explorative Analysis
00000000

3. Modelling
●00

4. Conclusions
000
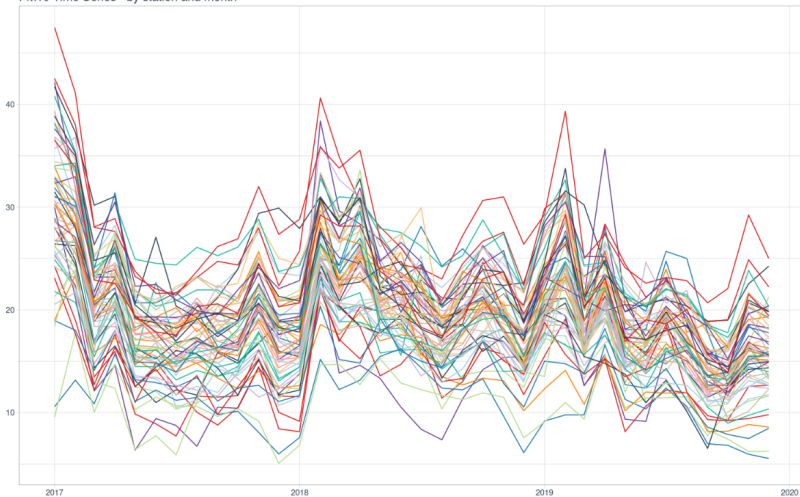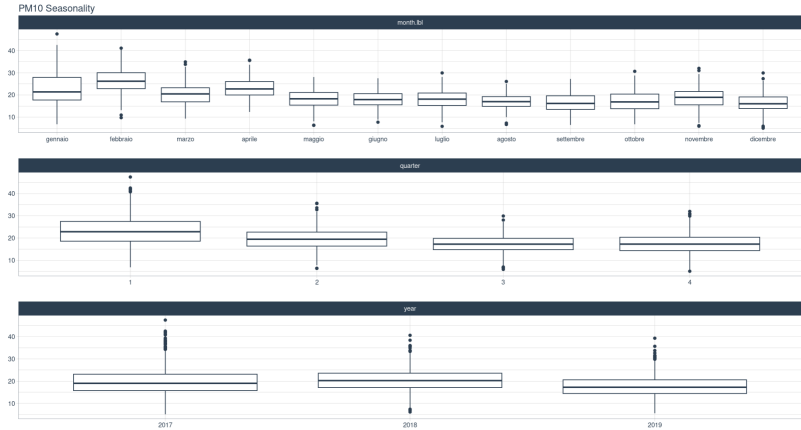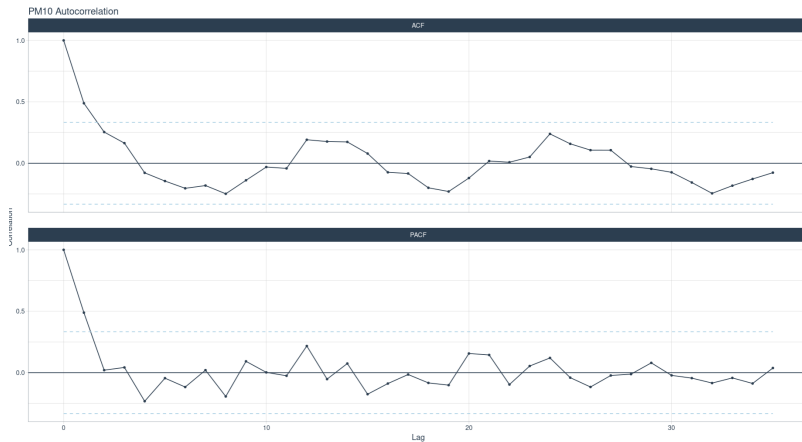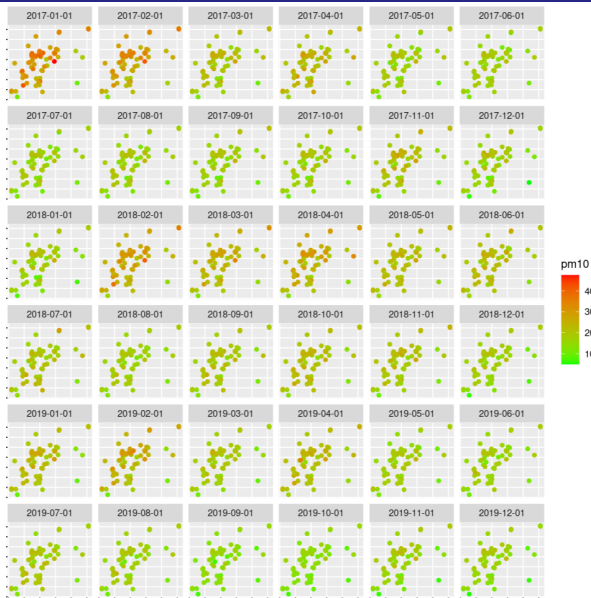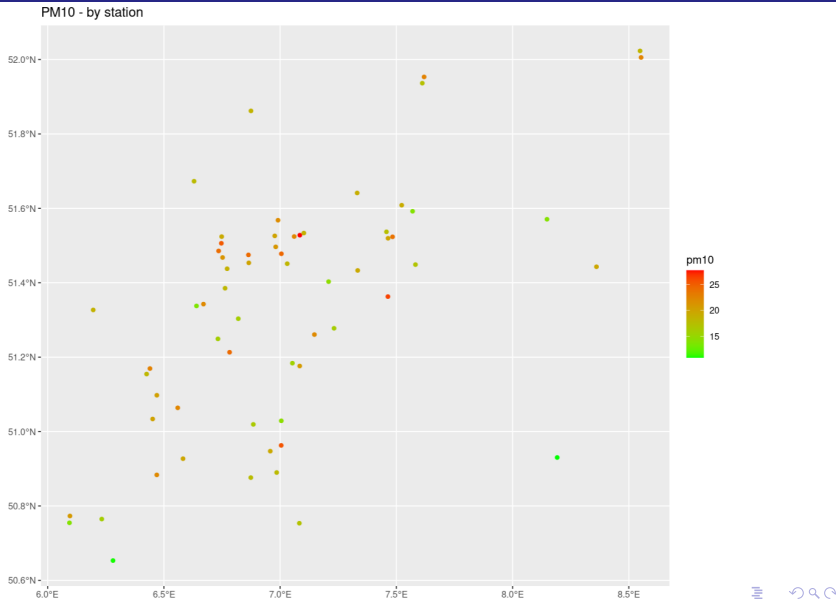
3. Modelling

We used spatio-temporal models to predict PM10 concentration in Nordrhein-Westfalen.

Two methods:

▶ separable spatio-temporal model
▶ product-sum spatio-temporal model

Three cross-validation strategies:

▶ Leave-Location-Out CV
▶ Leave-Time-Out CV
▶ Leave-Location-Time-Out CV

1. Data
000

2. Explorative Analysis
00000000

3. Modelling
00●

4. Conclusions
000

RMSE by CV strategy

1. Data
000

2. Explorative Analysis
00000000

3. Modelling
000

4. Conclusions
●○○

4. Conclusions

▶ There is no significance difference between the two models in predicting PM10 concentration

▶ Temporal validation strategies seems to be more effective

▶ No covariates were included in the models

1. Data
ooo

2. Explorative Analysis
oooooooo

3. Modelling
ooo

4. Conclusions
oo●

Thank you!