Clustering of air quality trends in Europe : 2000-2021

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INERIS

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1 Austria

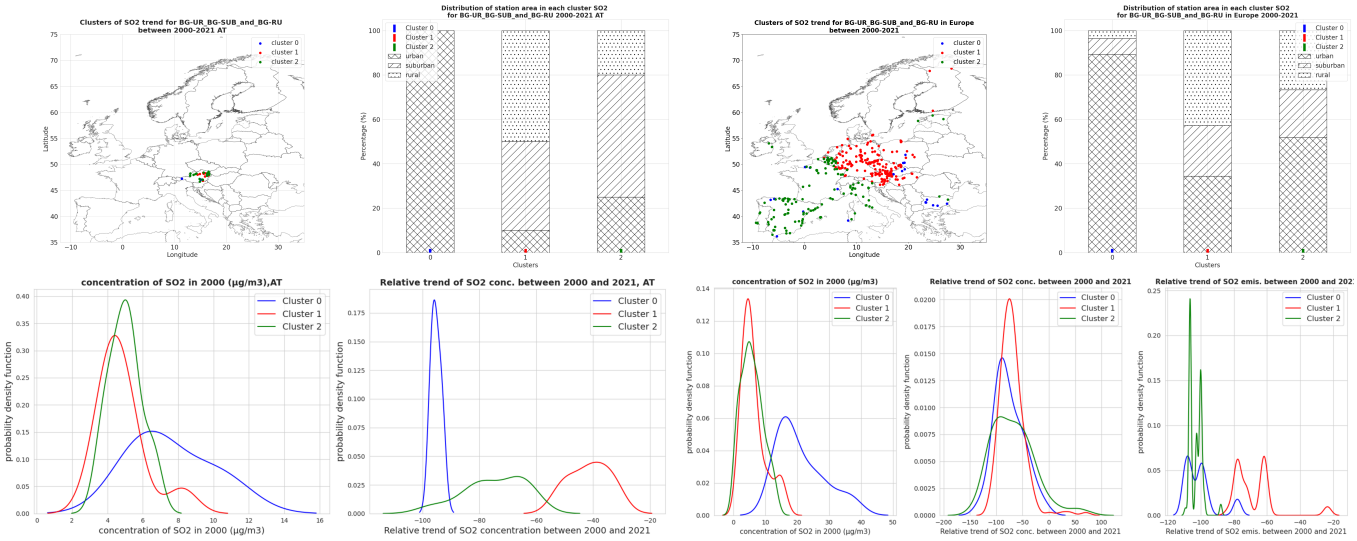


Figure A4.1: Clustering of the Austria (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

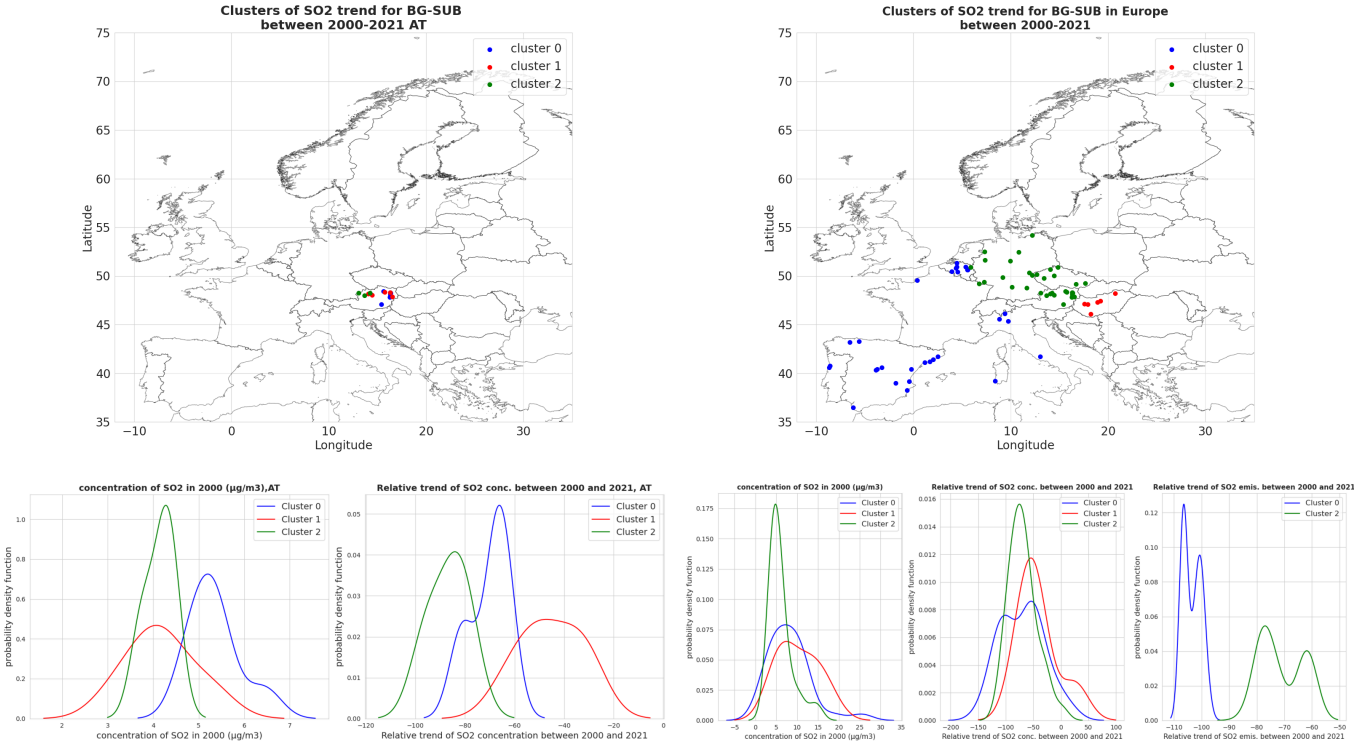
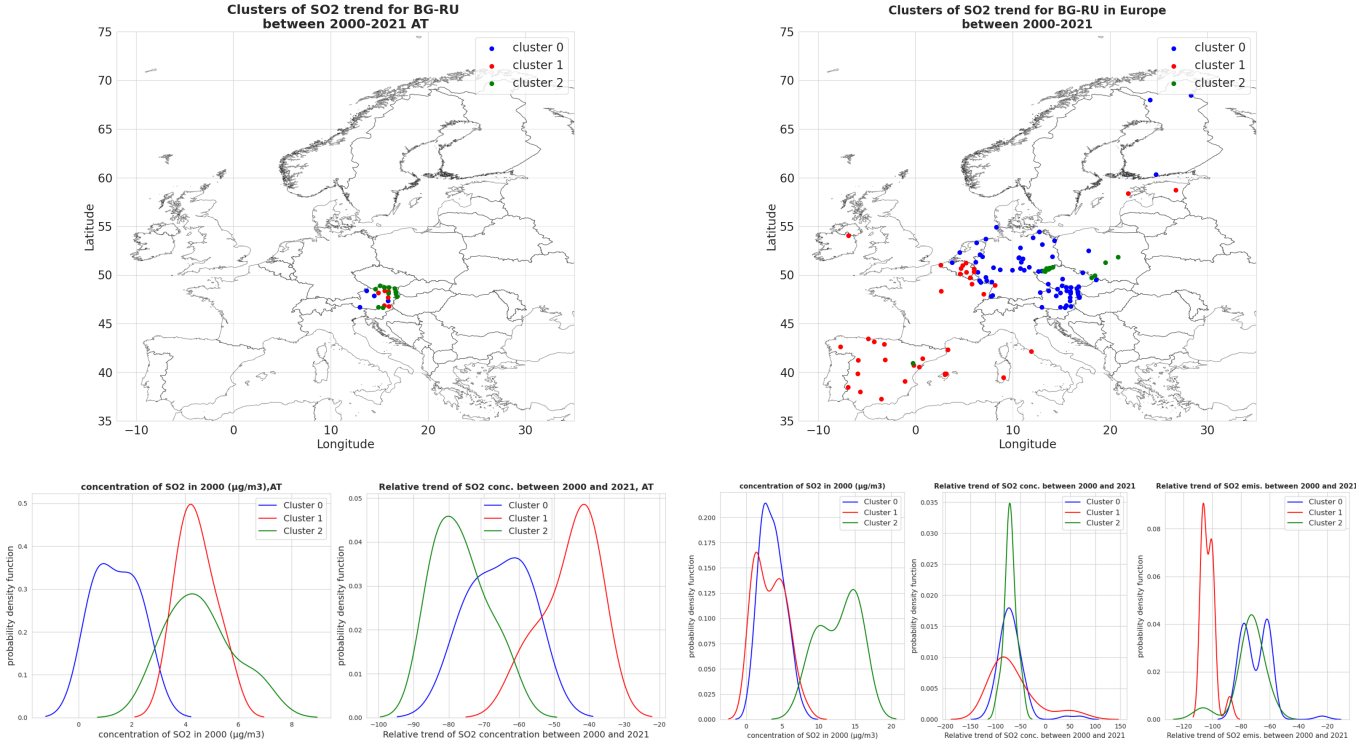


Figure A4.2: Clustering of the Austria (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.



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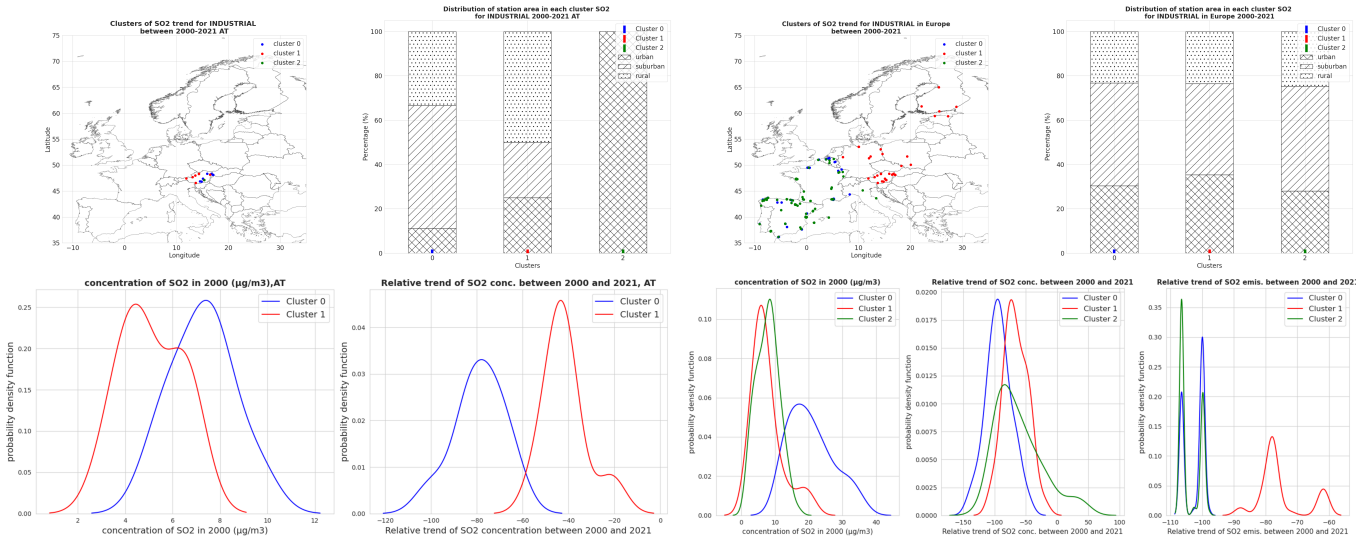


Figure A4.4: Clustering of the Austria (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

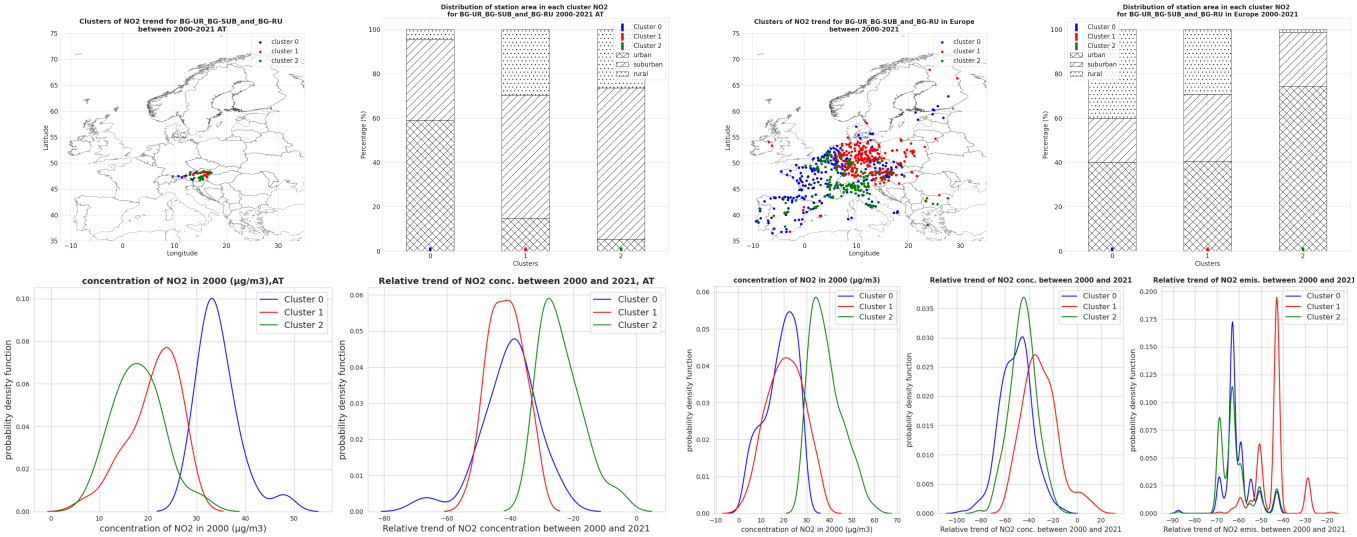
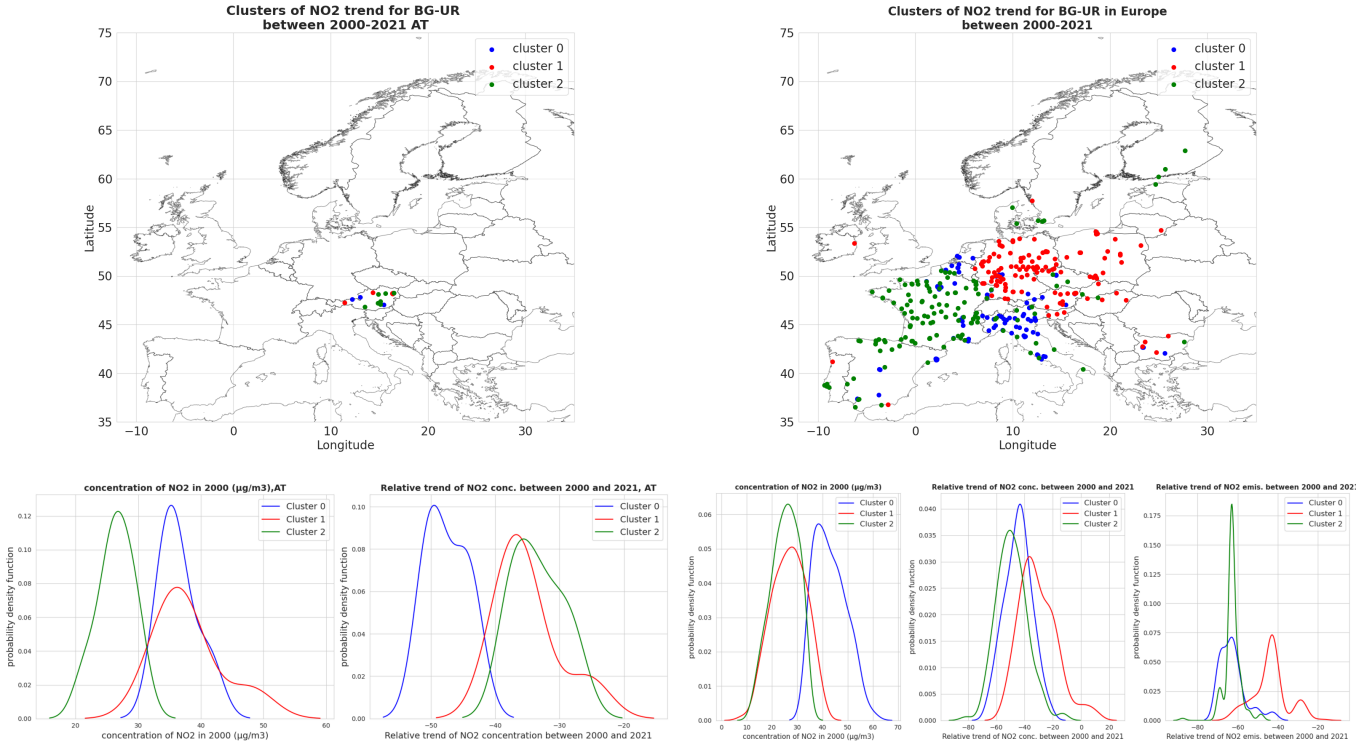


Figure A4.5: Clustering of the Austria (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.



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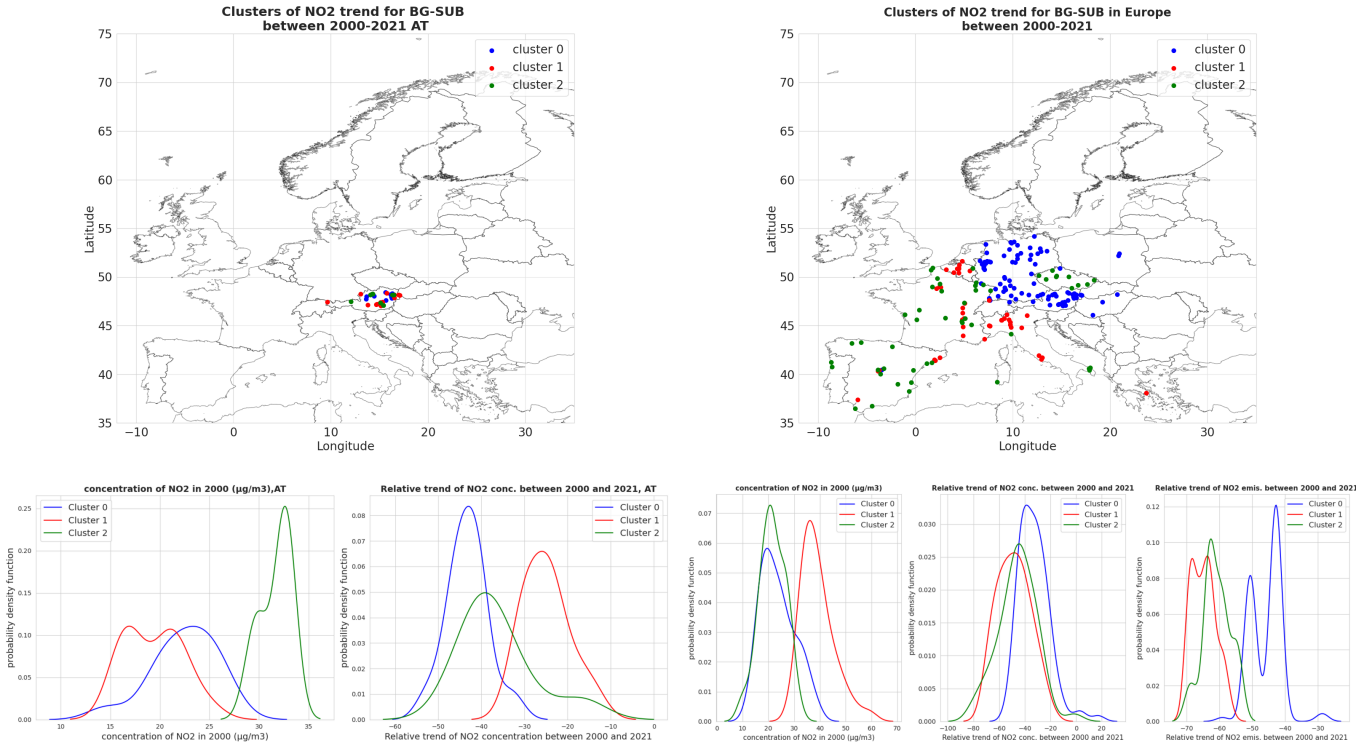

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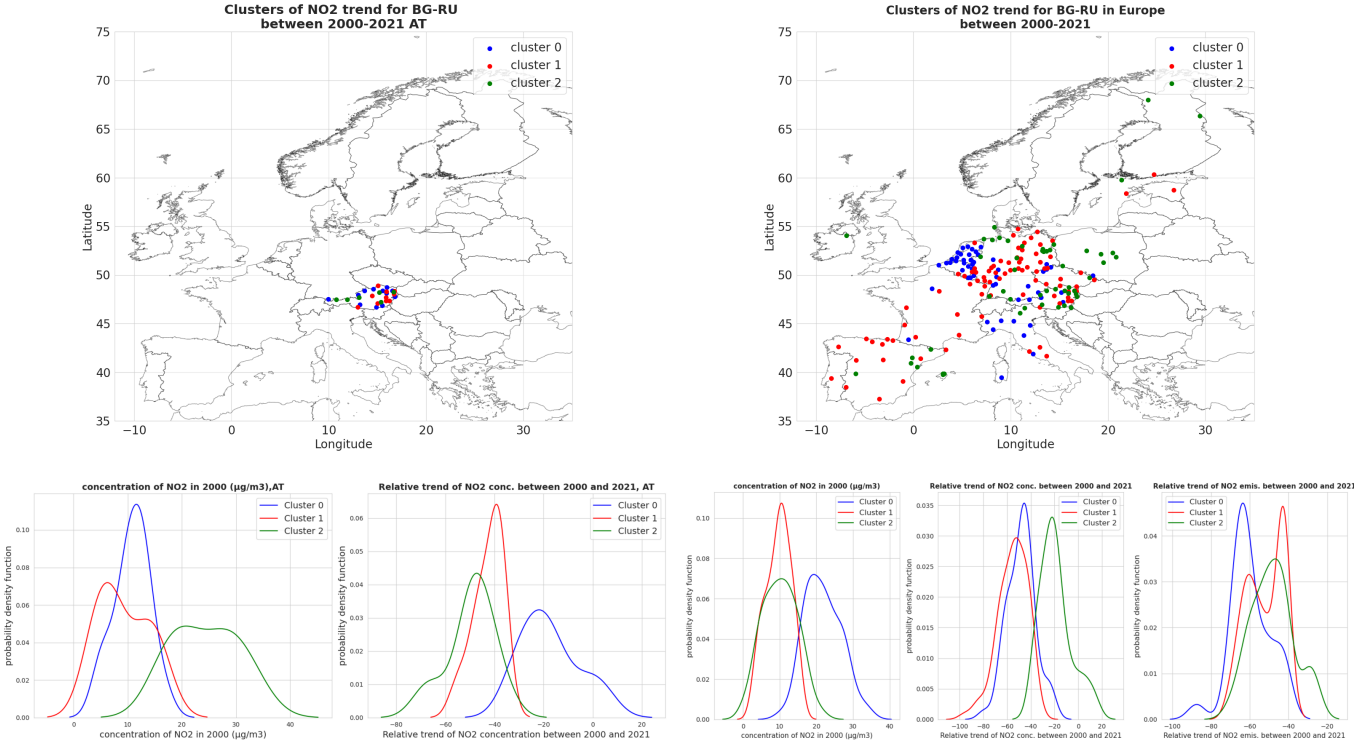

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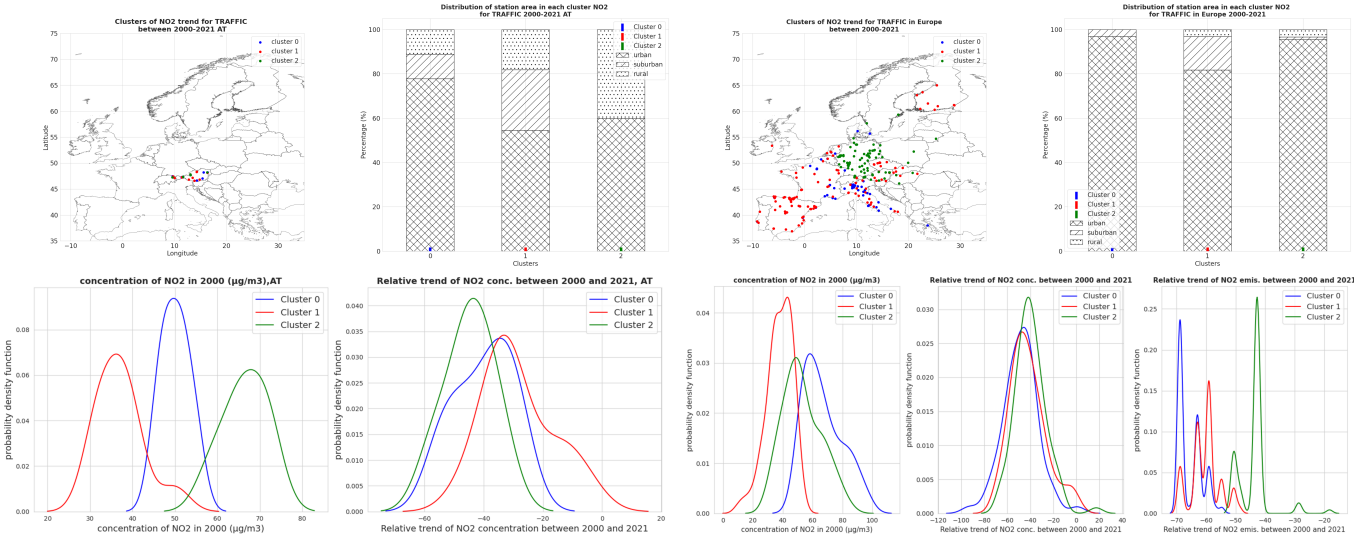


Figure A4.9: Clustering of the Austria (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

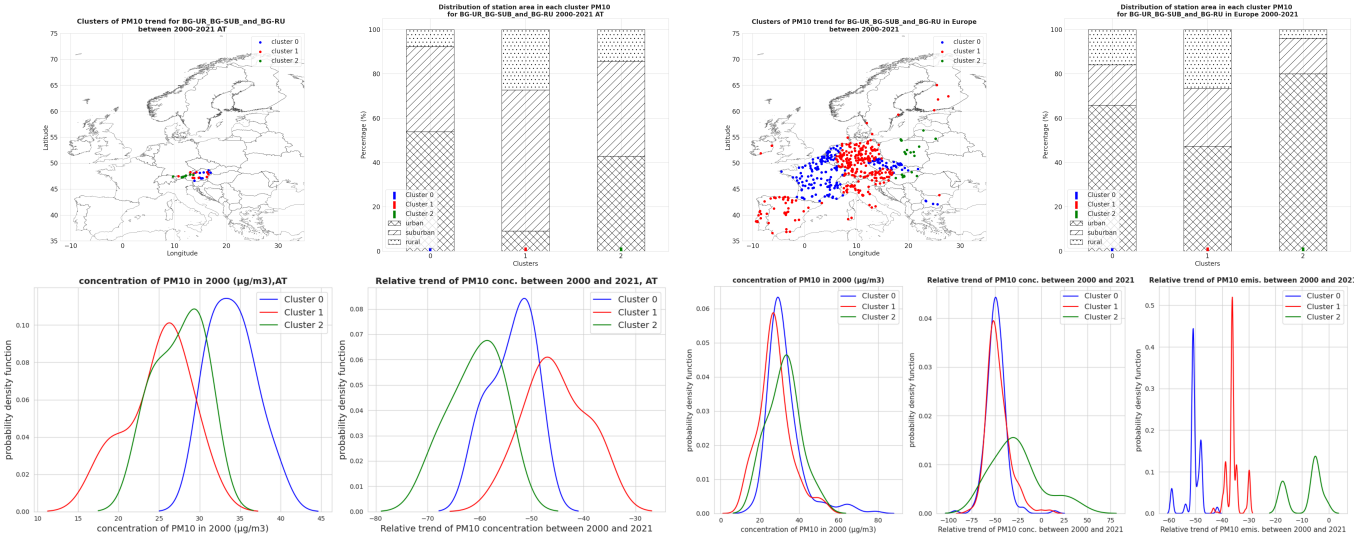


Figure A4.10: Clustering of the Austria (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

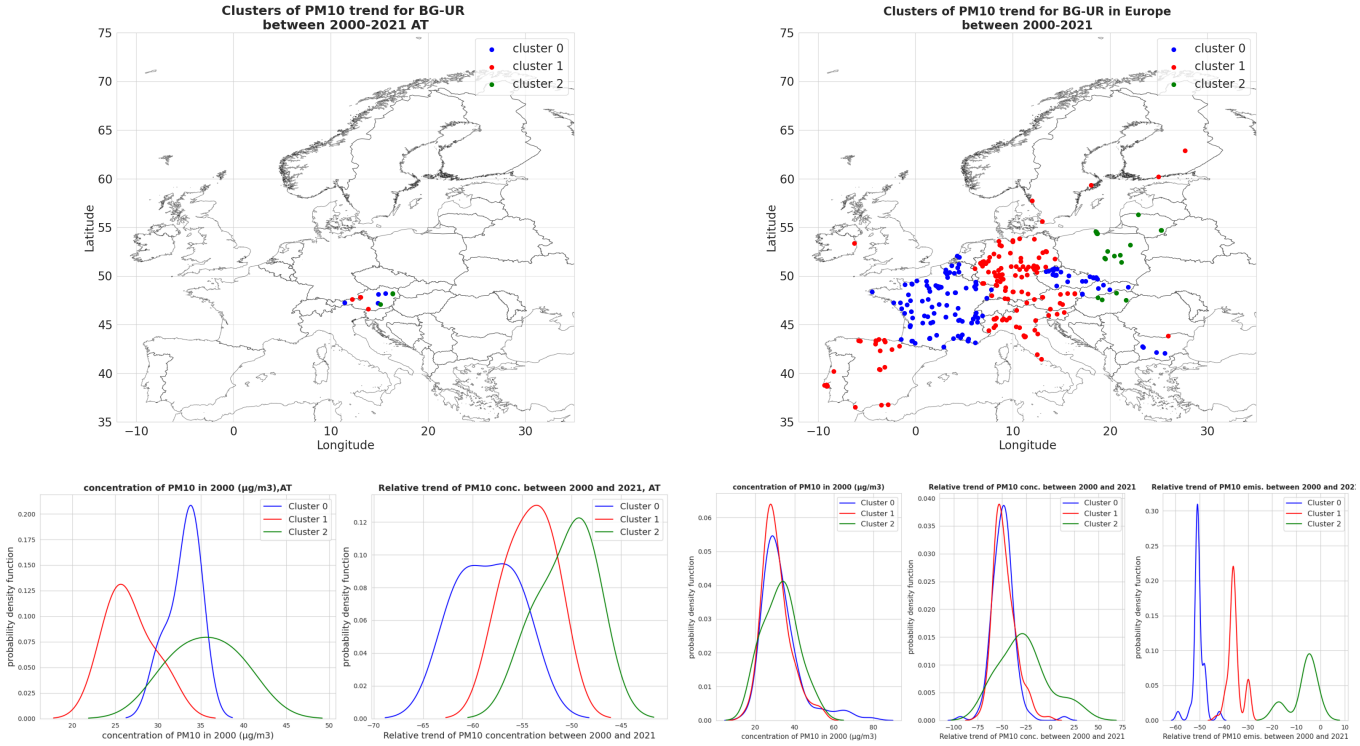


Figure A4.11: Clustering of the Austria (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

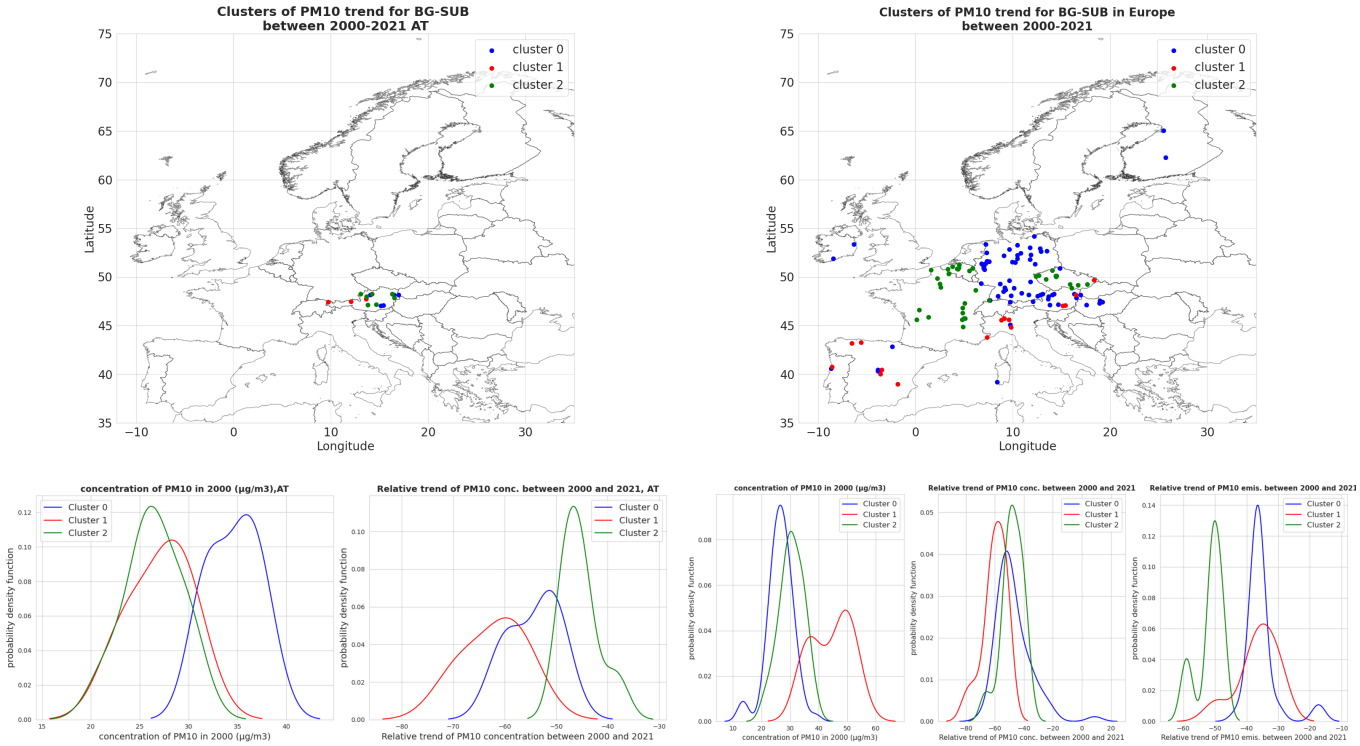


Figure A4.12: Clustering of the Austria (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

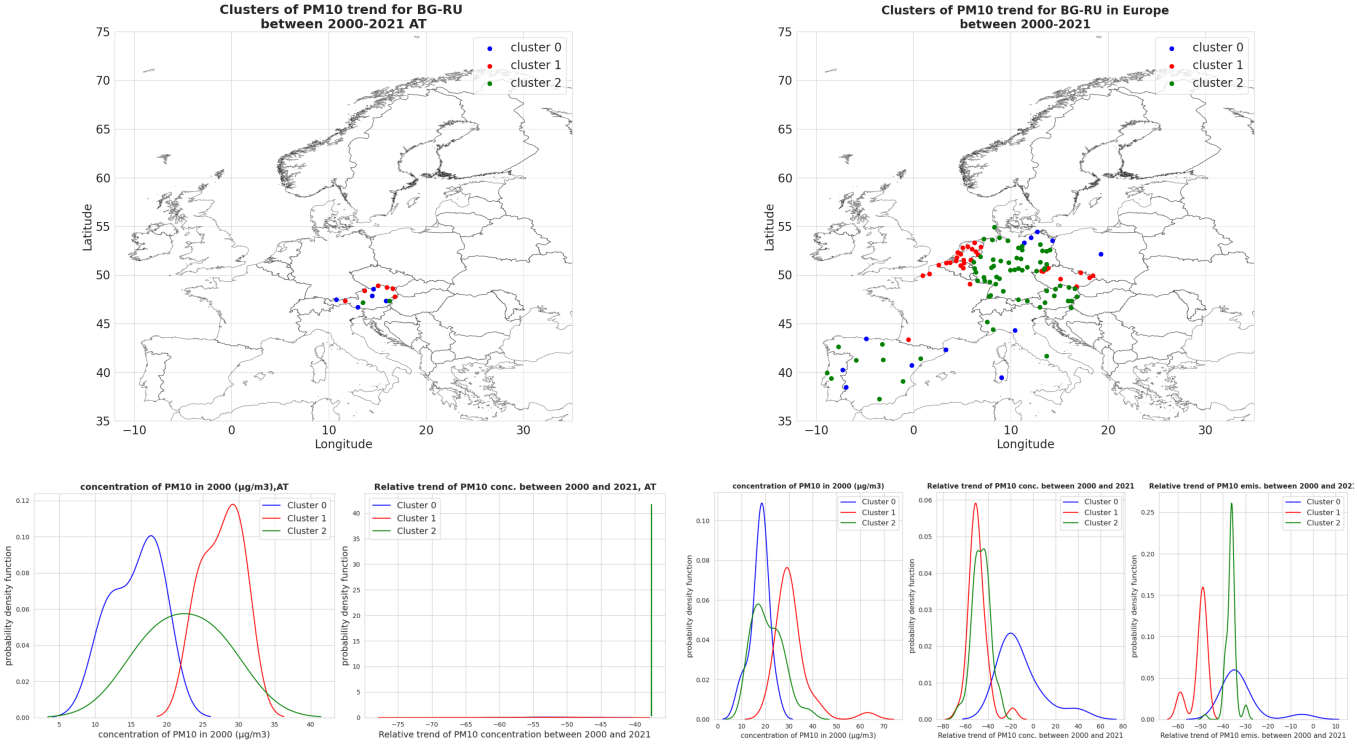


Figure A4.13: Clustering of the Austria (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

2 Belgium

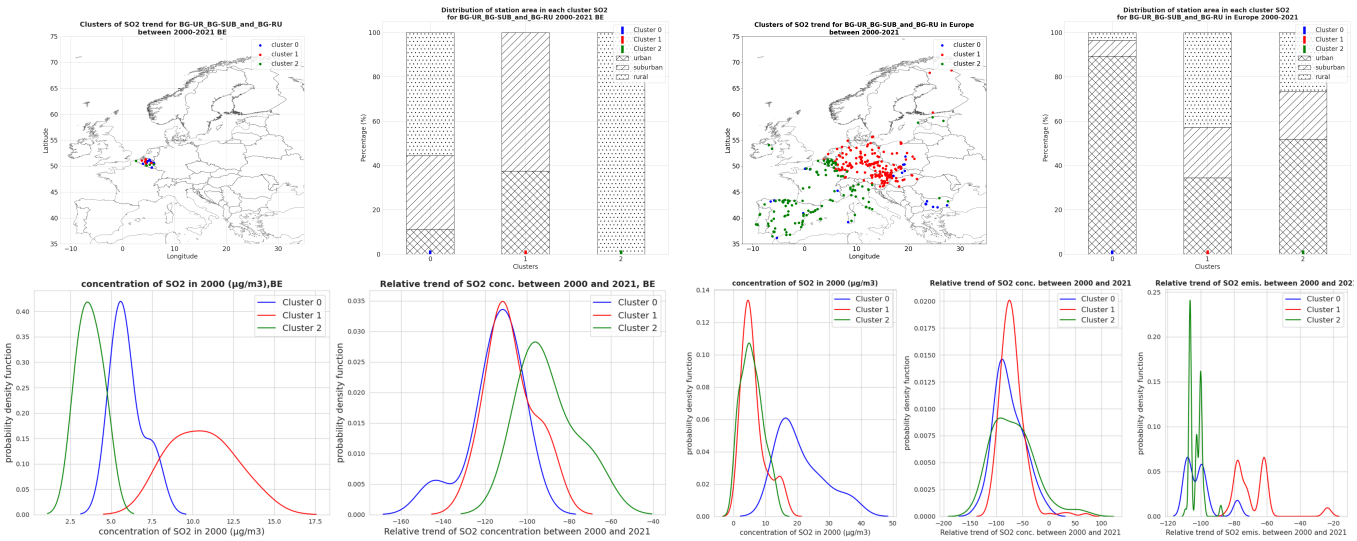


Figure A4.14: Clustering of the Belgium (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

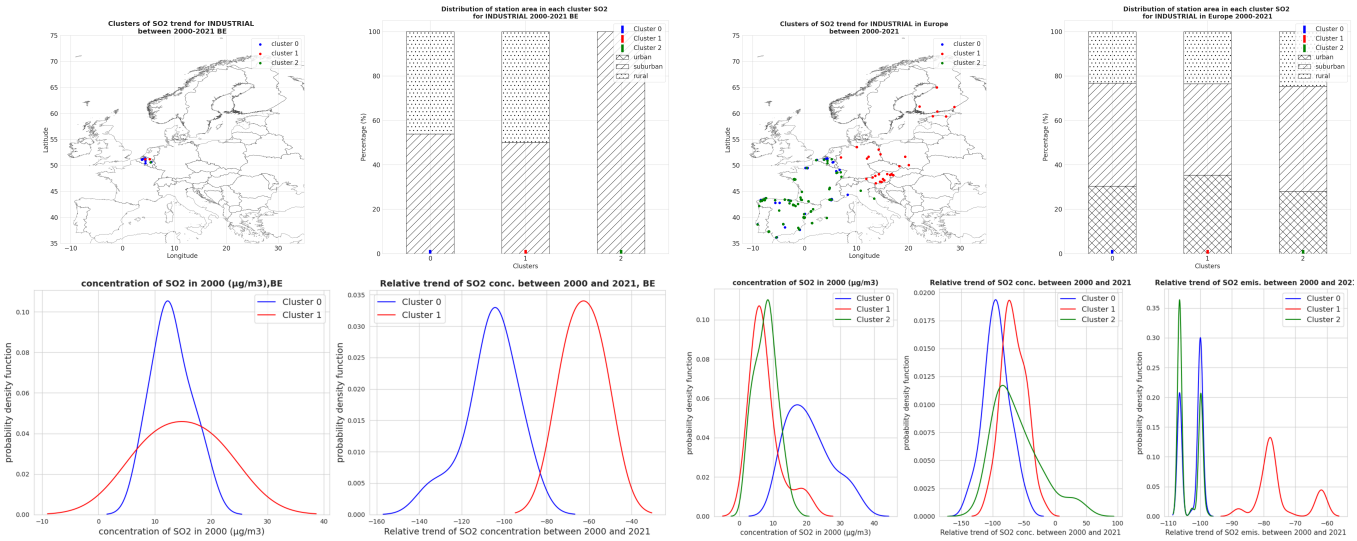


Figure A4.15: Clustering of the Belgium (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

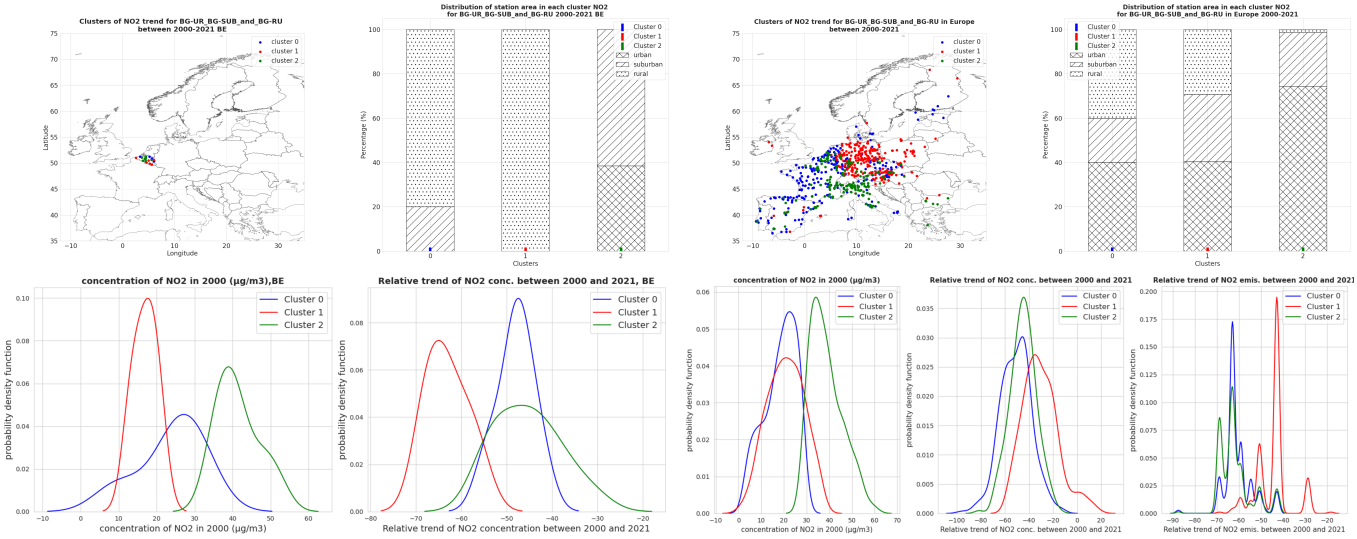


Figure A4.16: Clustering of the Belgium (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

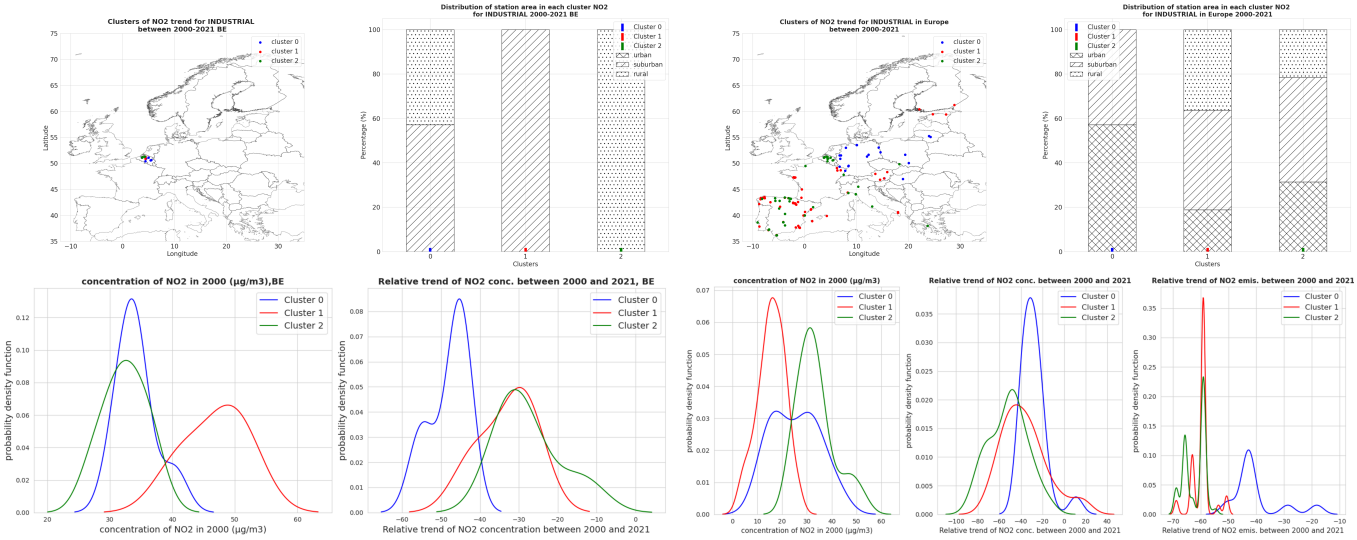


Figure A4.17: Clustering of the Belgium (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

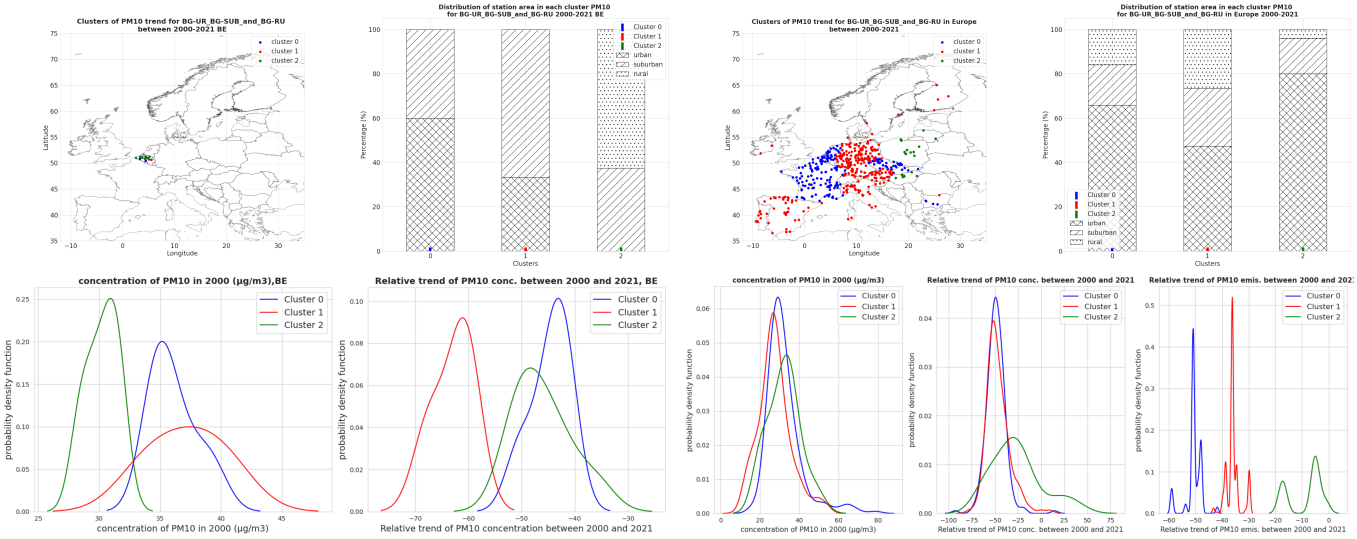


Figure A4.18: Clustering of the Belgium (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

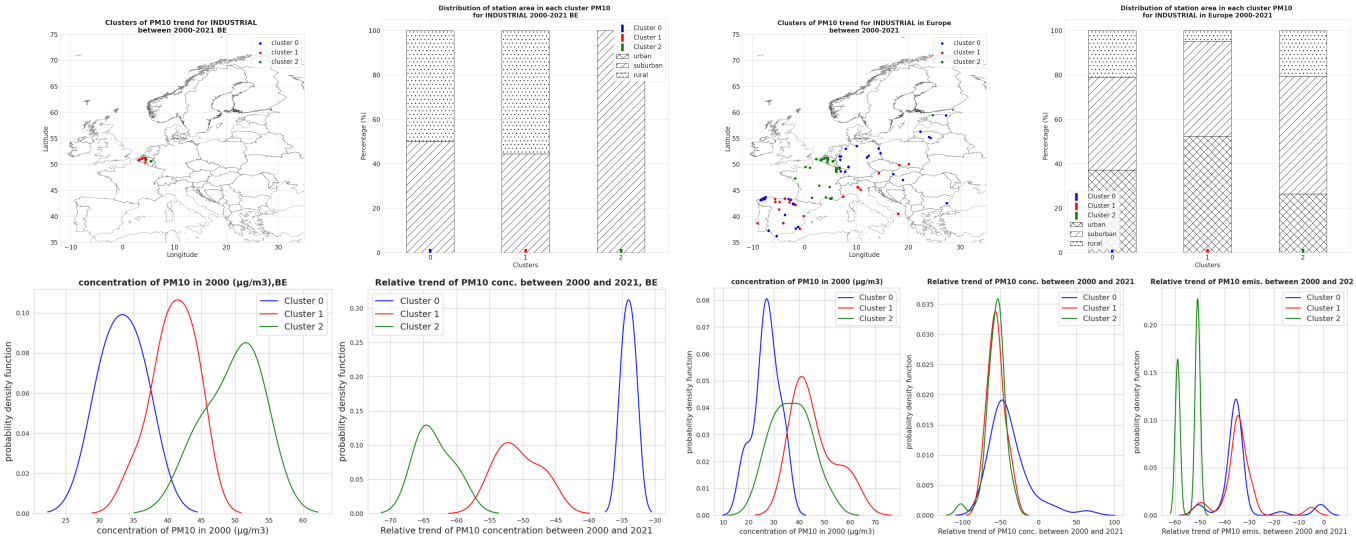


Figure A4.19: Clustering of the Belgium (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

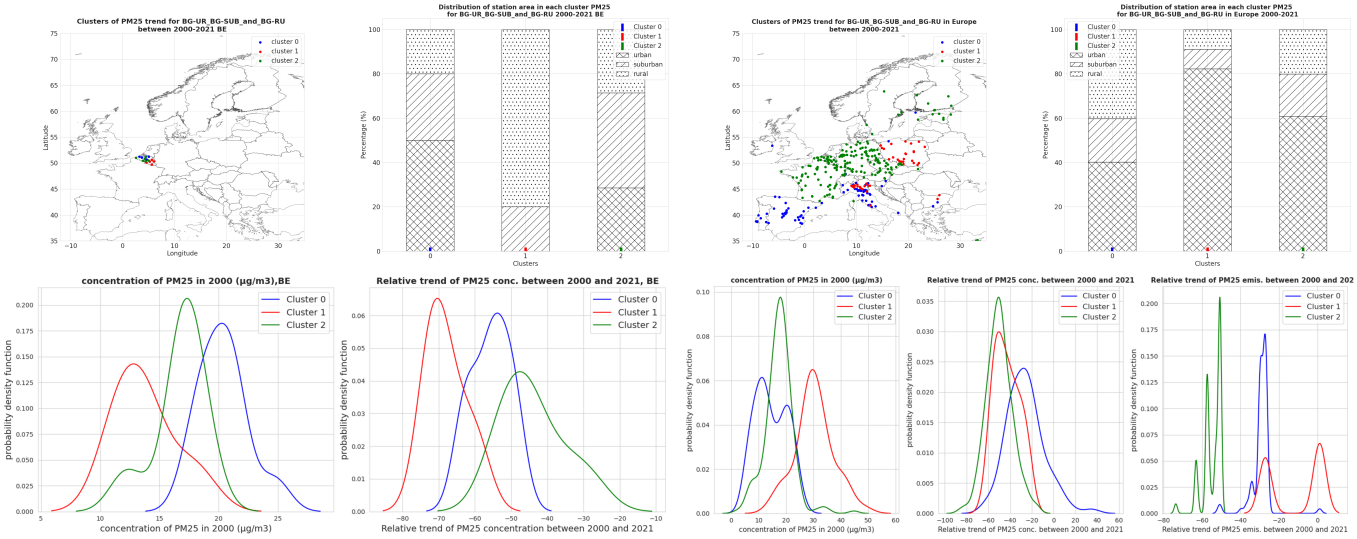


Figure A4.20: Clustering of the Belgium (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

3 Bulgaria

The minimum number of stations required to assess the country-wise clustering is not met.

4 Switzerland

The minimum number of stations required to assess the country-wise clustering is not met.

5 Czechia

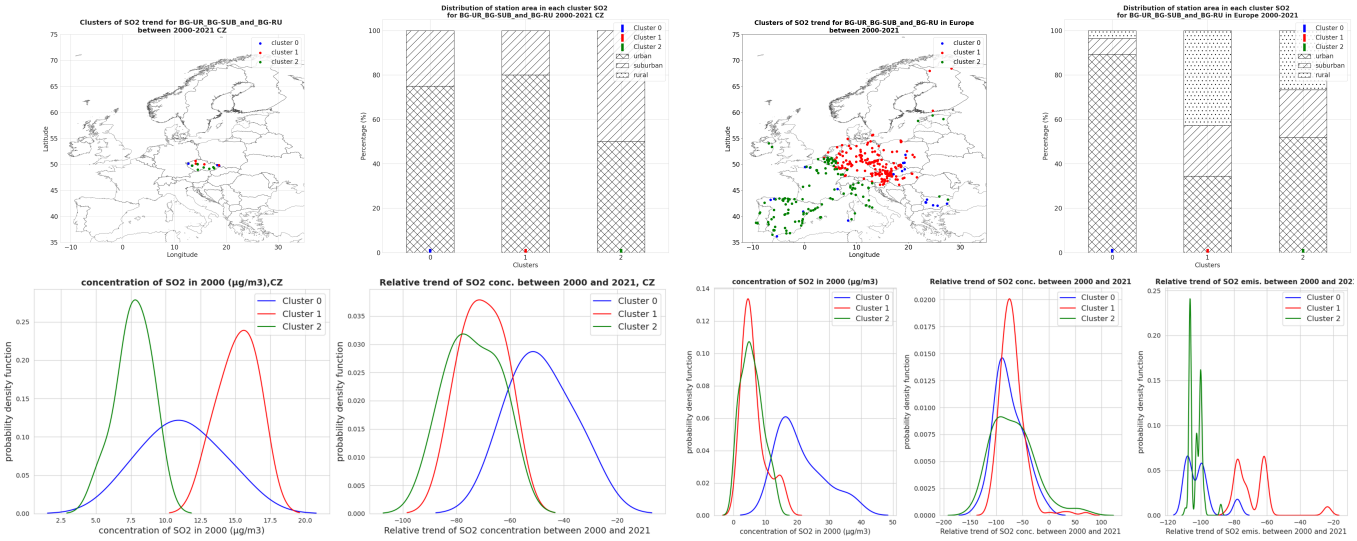


Figure A4.21: Clustering of the Czechia (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

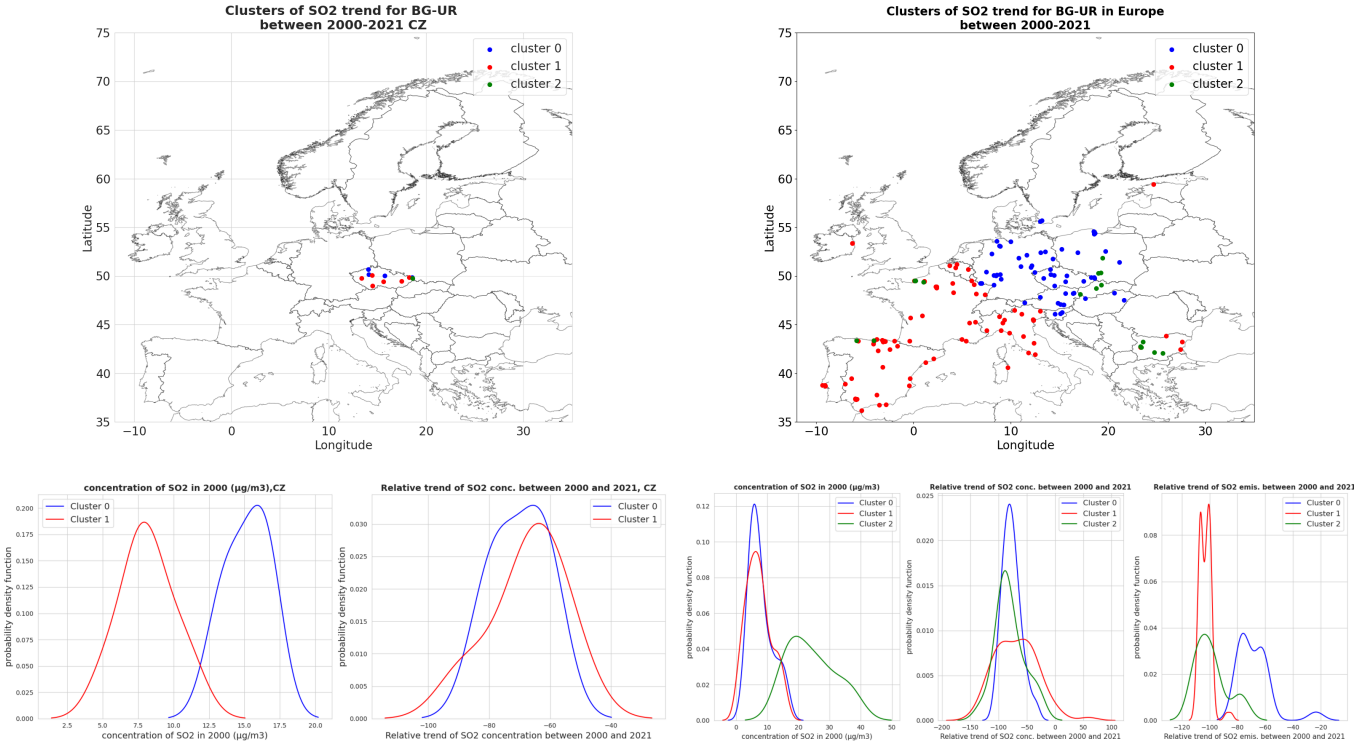


Figure A4.22: Clustering of the Czechia (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

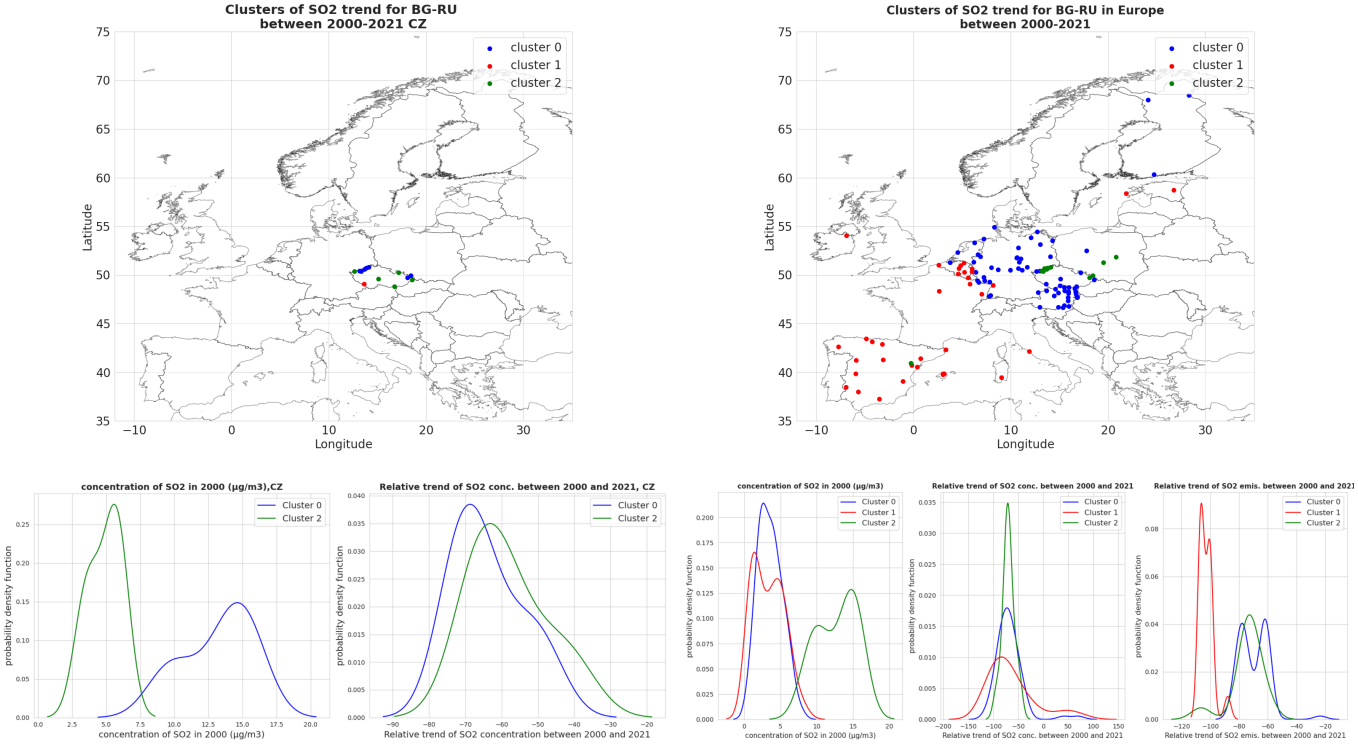


Figure A4.23: Clustering of the Czechia (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

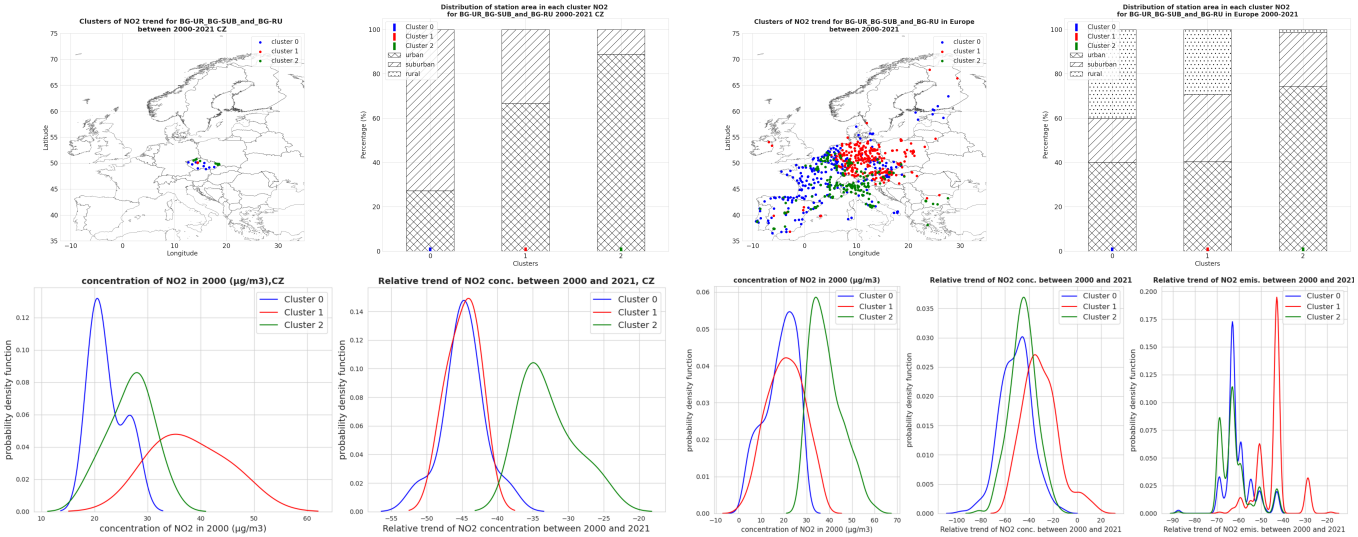
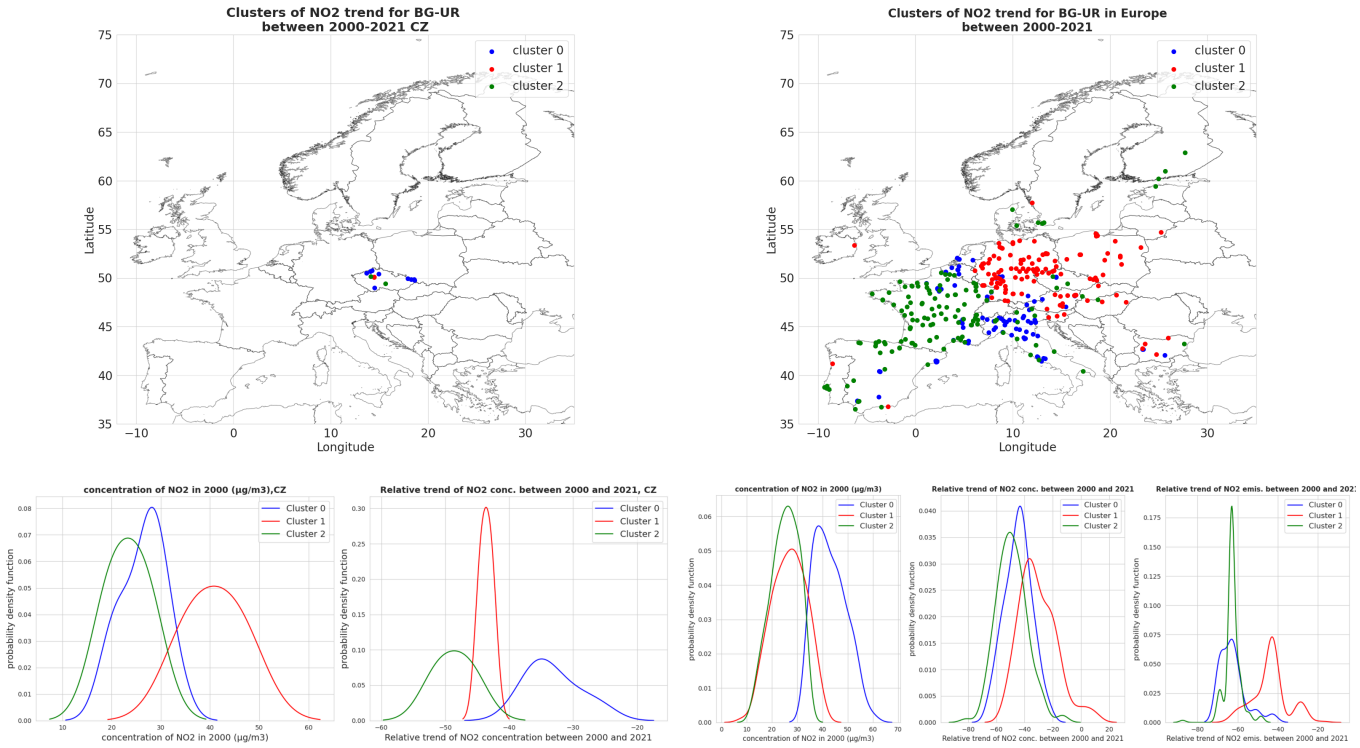


Figure A4.24: Clustering of the Czechia (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.



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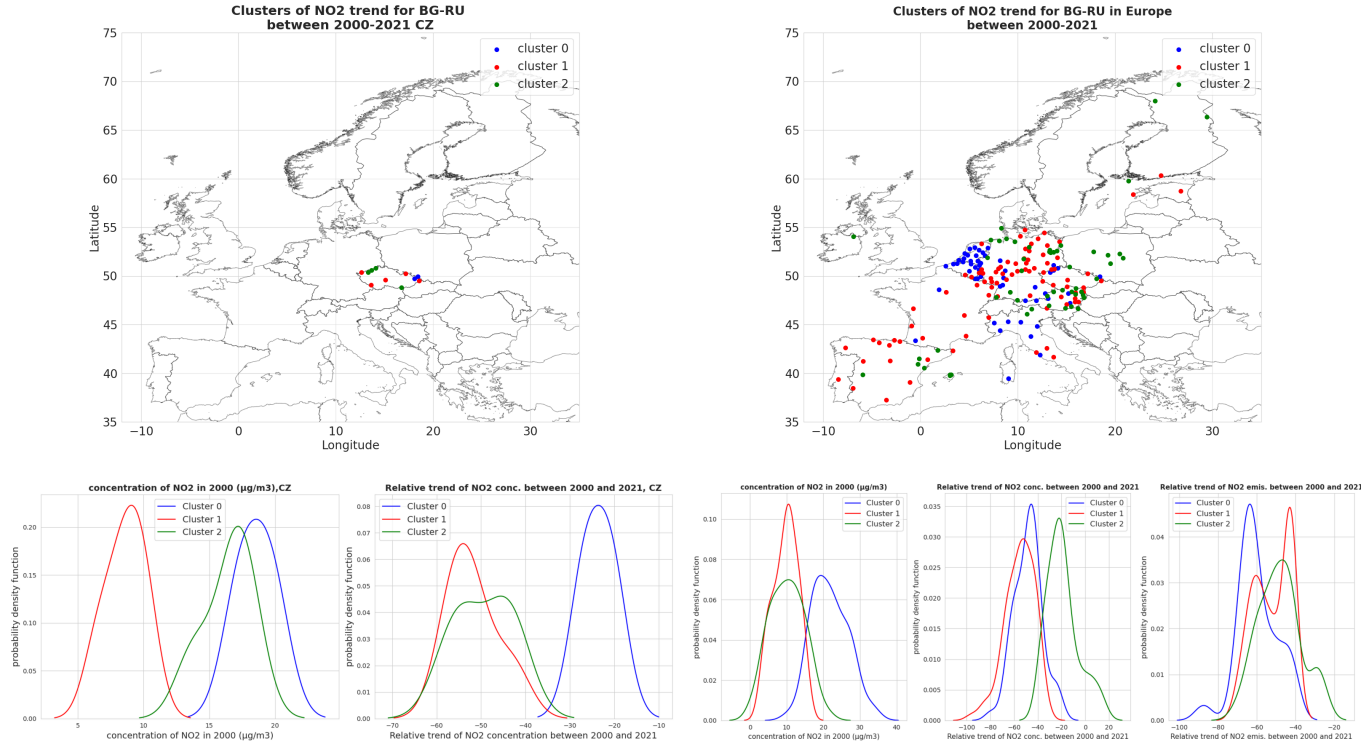

Figure A4.26: Clustering of the Czechia (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

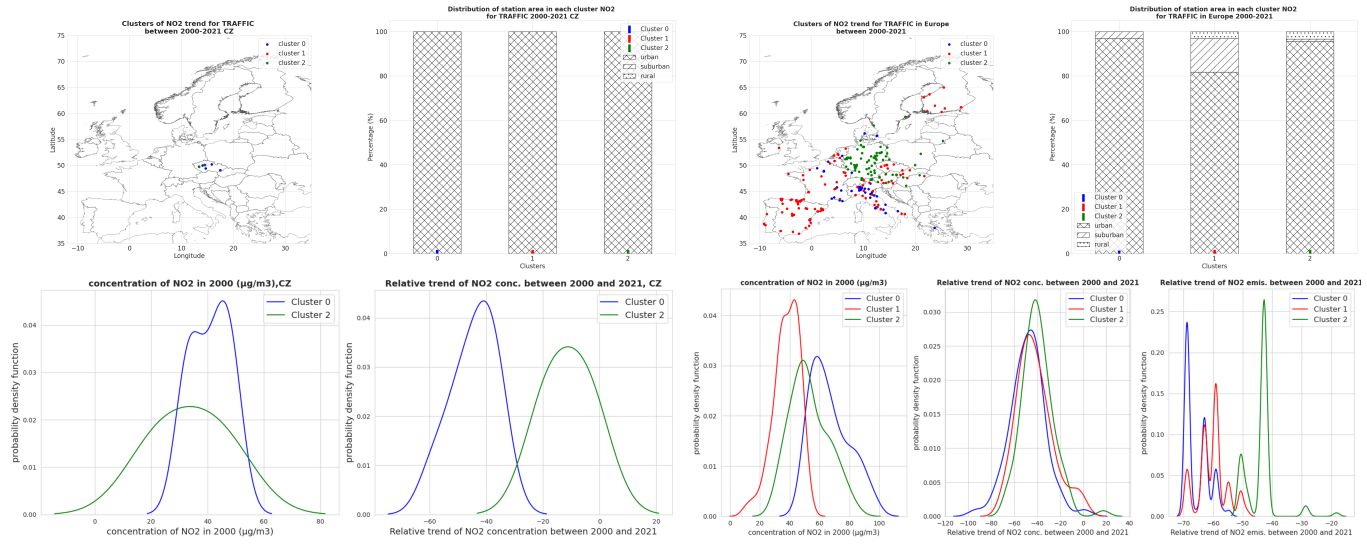

Figure A4.27: Clustering of the Czechia (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

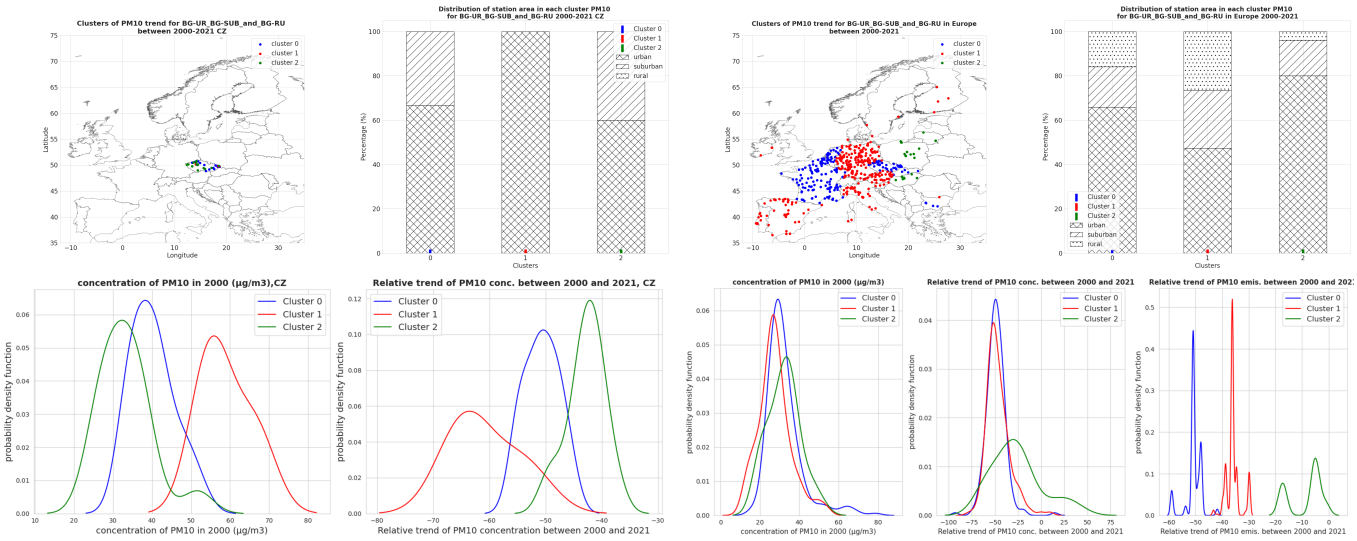

Figure A4.28: Clustering of the Czechia (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

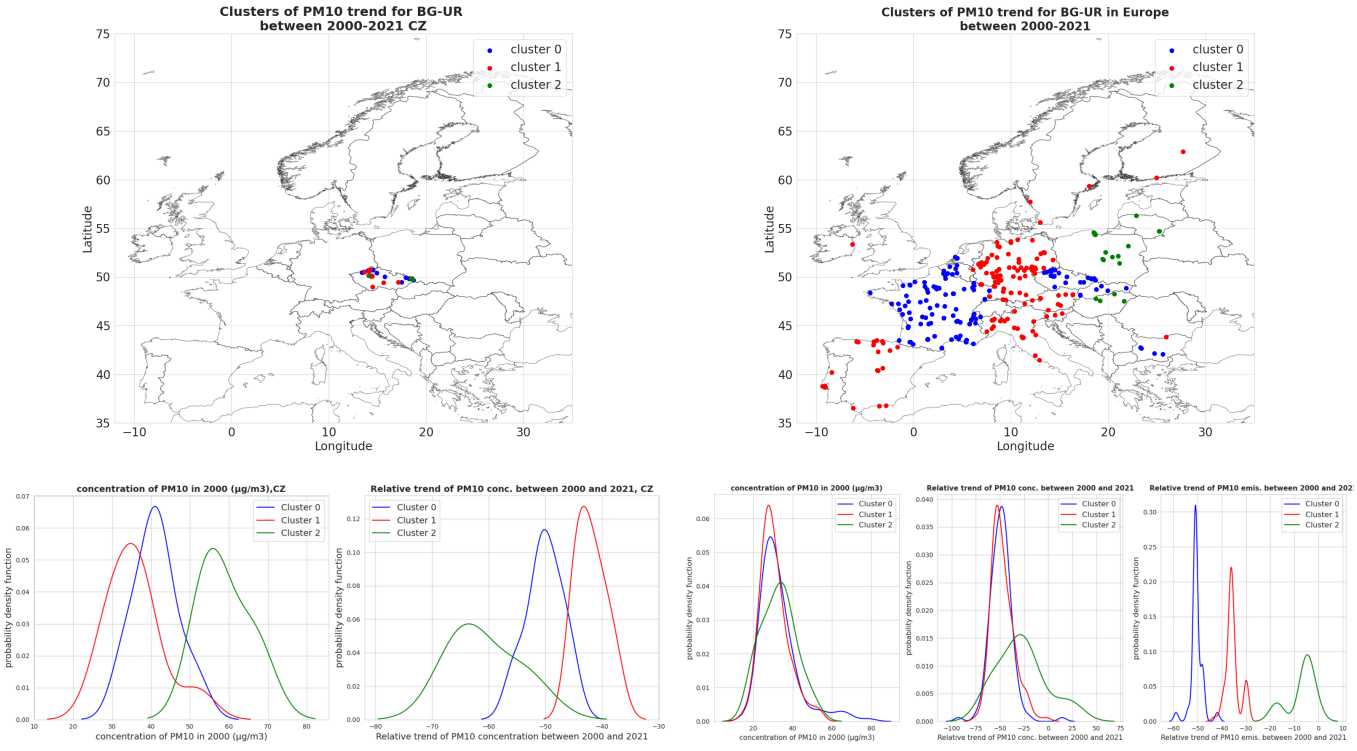

Figure A4.29: Clustering of the Czechia (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

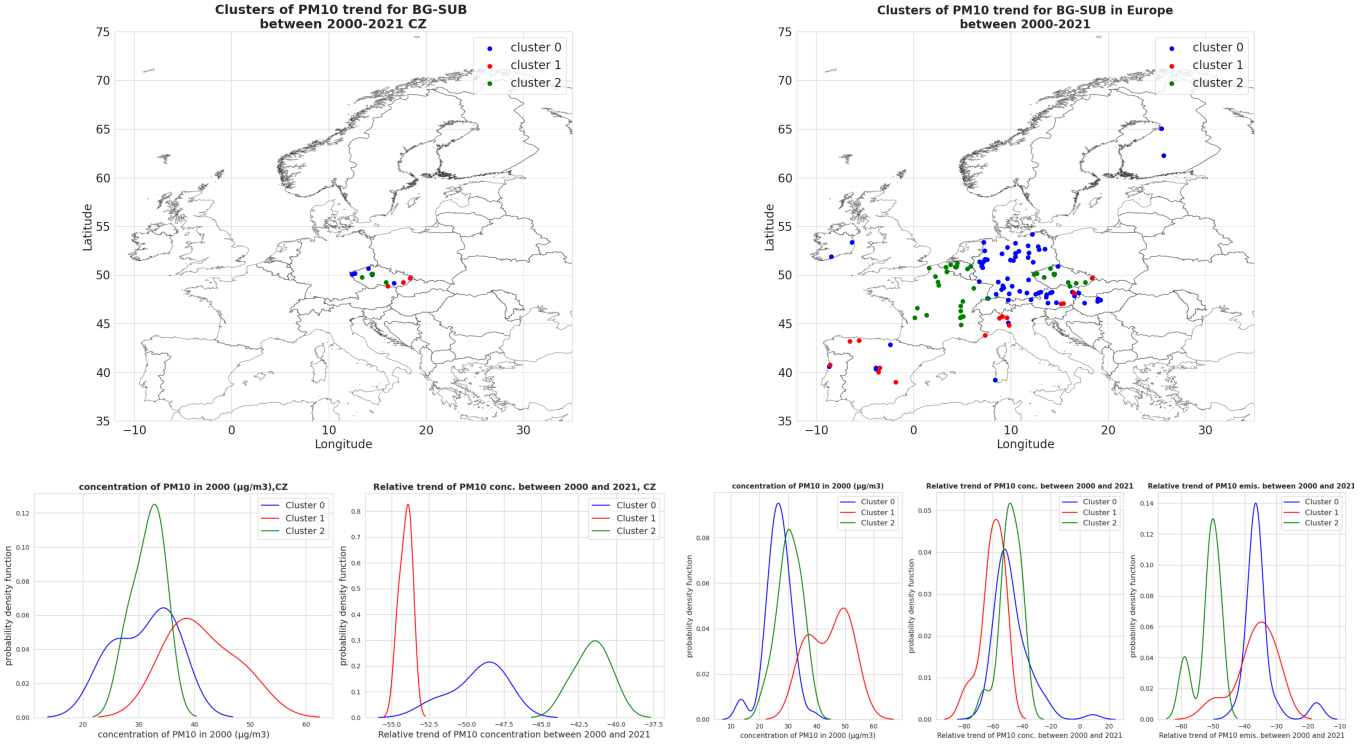

Figure A4.30: Clustering of the Czechia (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

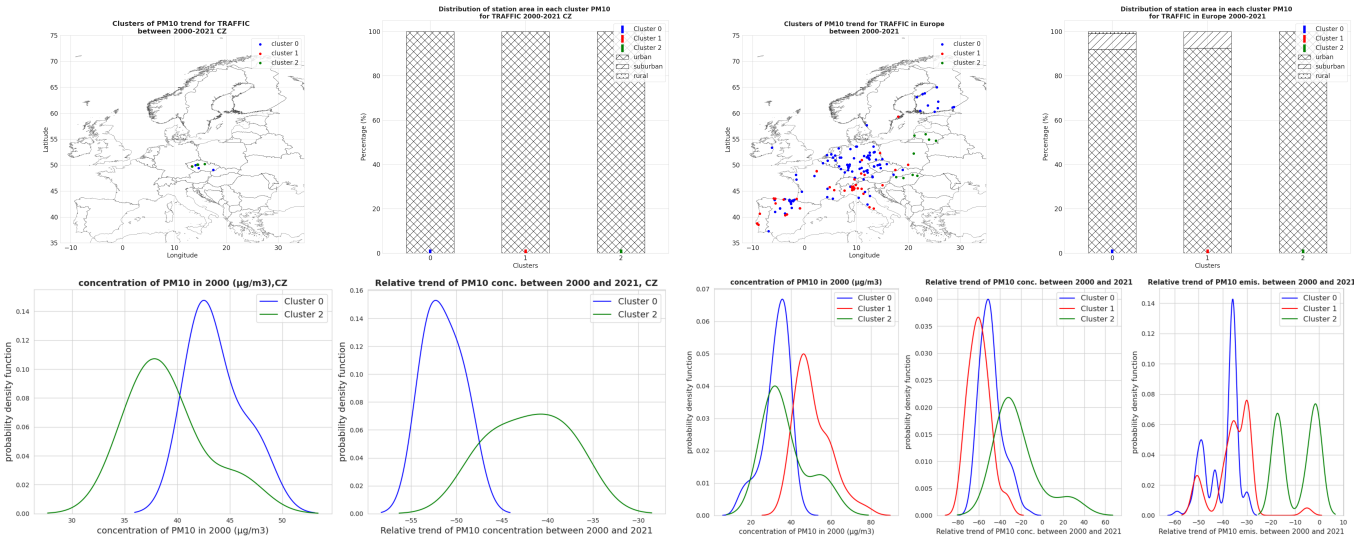

Figure A4.31: Clustering of the Czechia (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

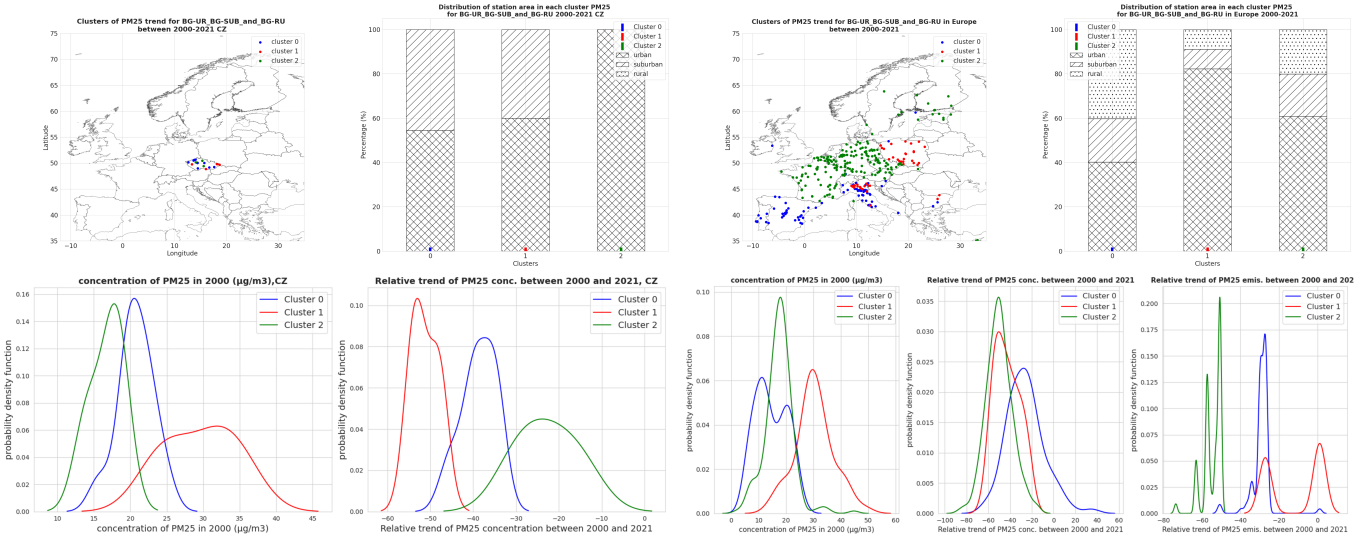

Figure A4.32: Clustering of the Czechia (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

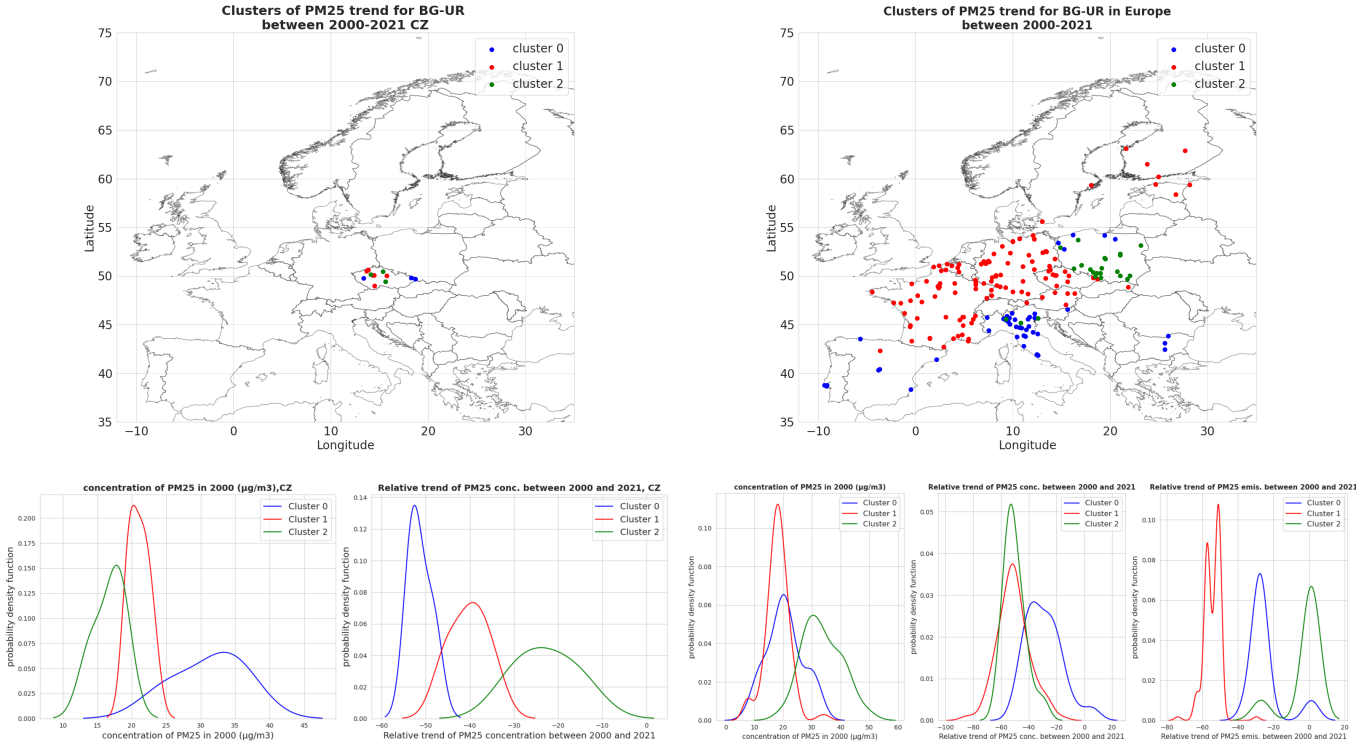

Figure A4.33: Clustering of the Czechia (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

6 Germany

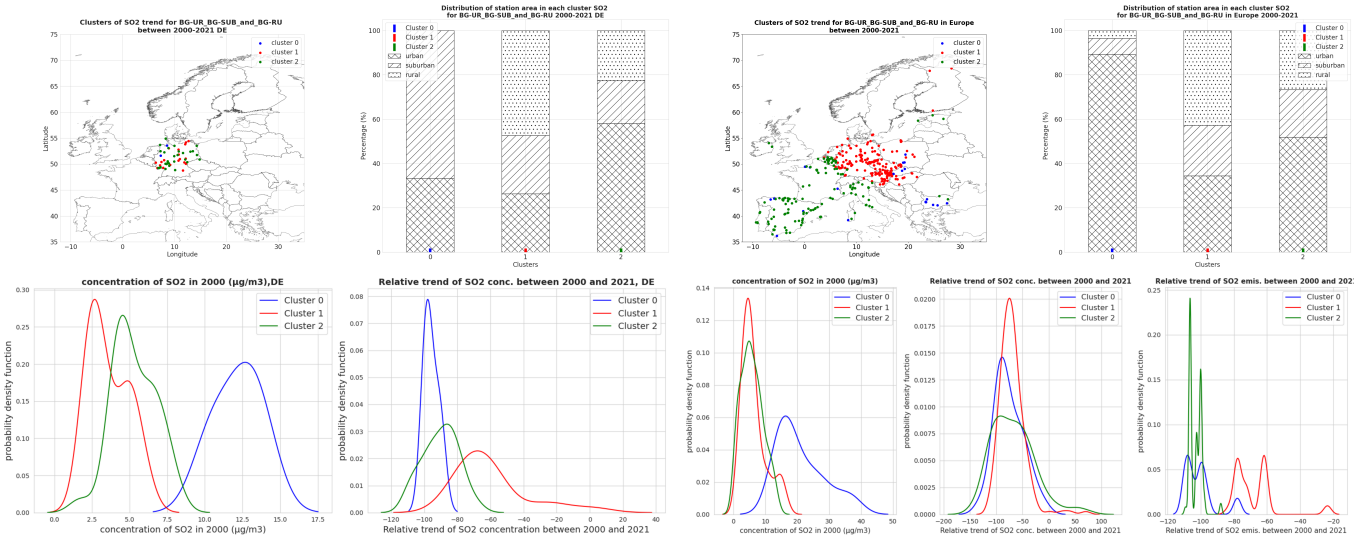

Figure A4.34: Clustering of the Germany (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

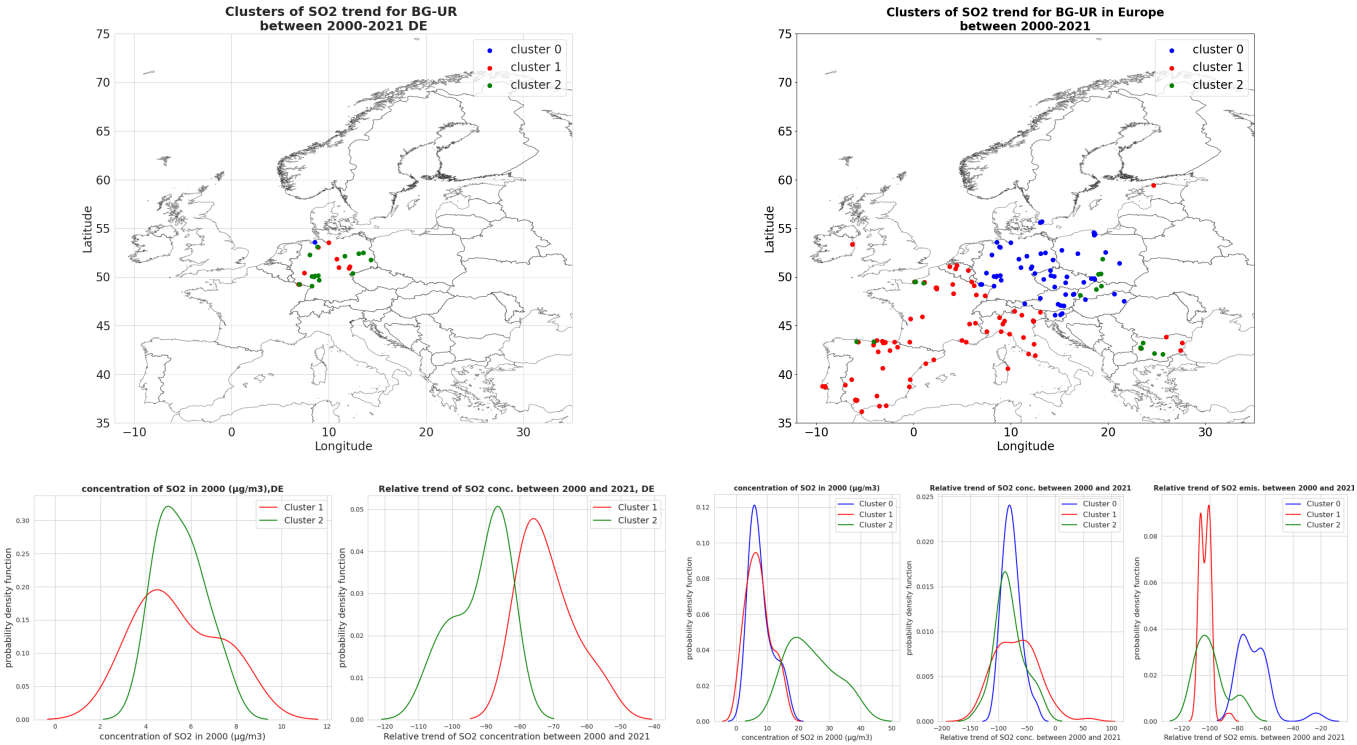

Figure A4.35: Clustering of the Germany (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

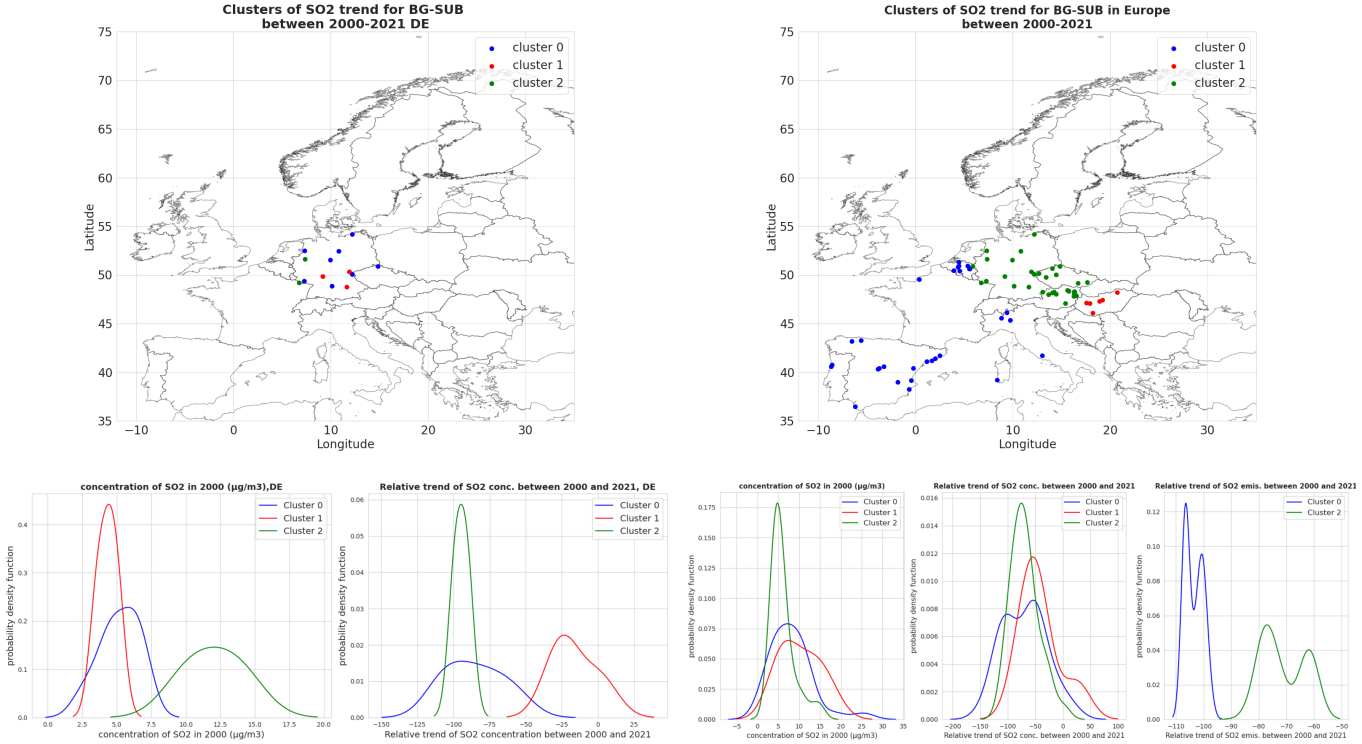

Figure A4.36: Clustering of the Germany (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

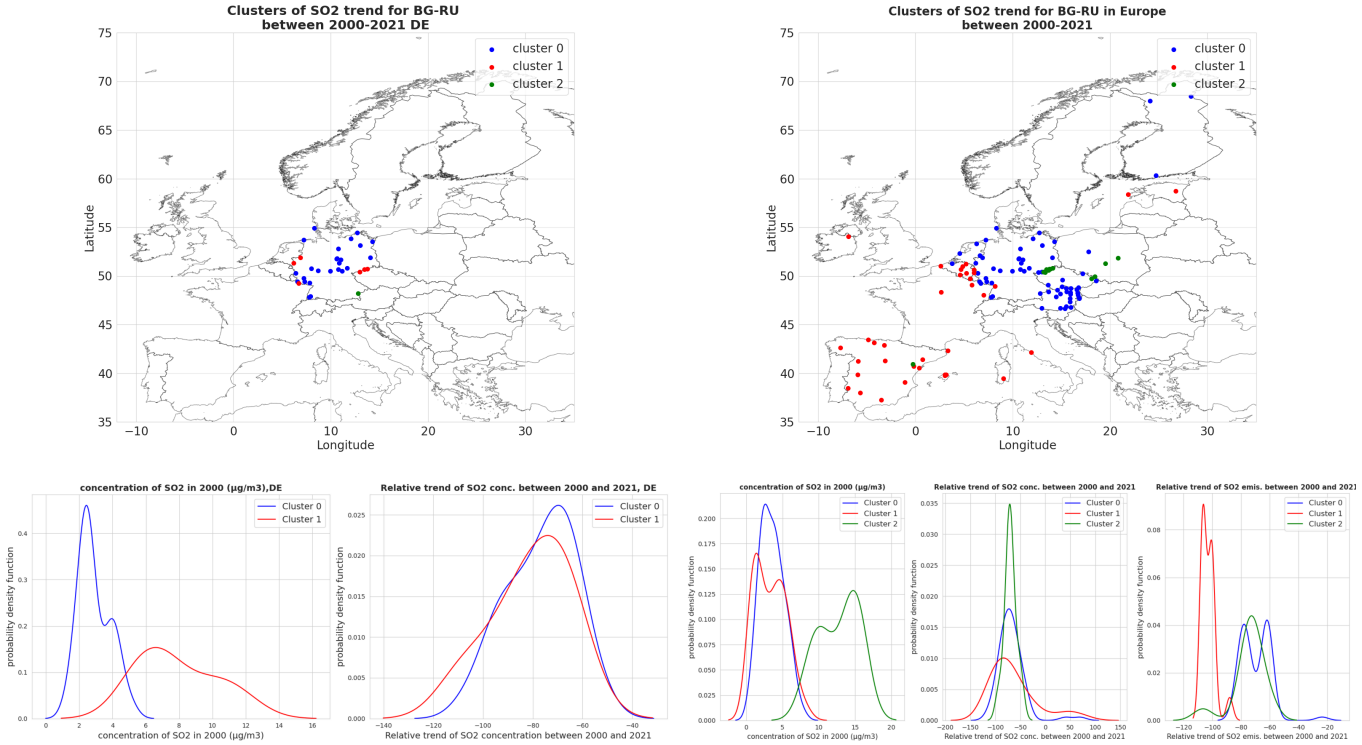

Figure A4.37: Clustering of the Germany (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

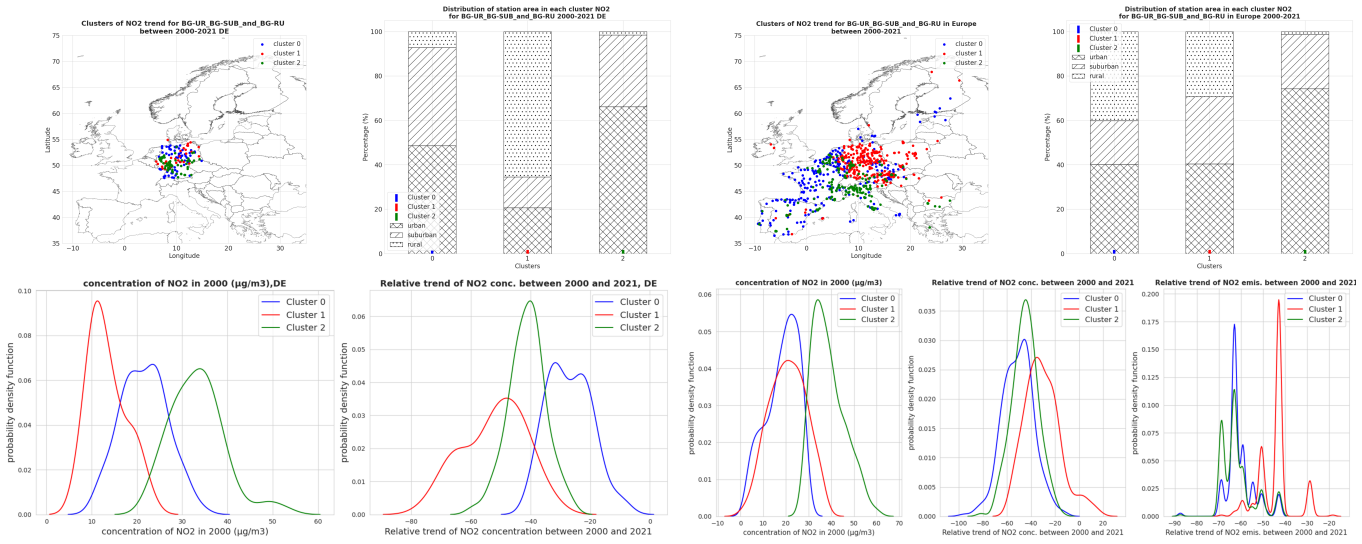

Figure A4.38: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

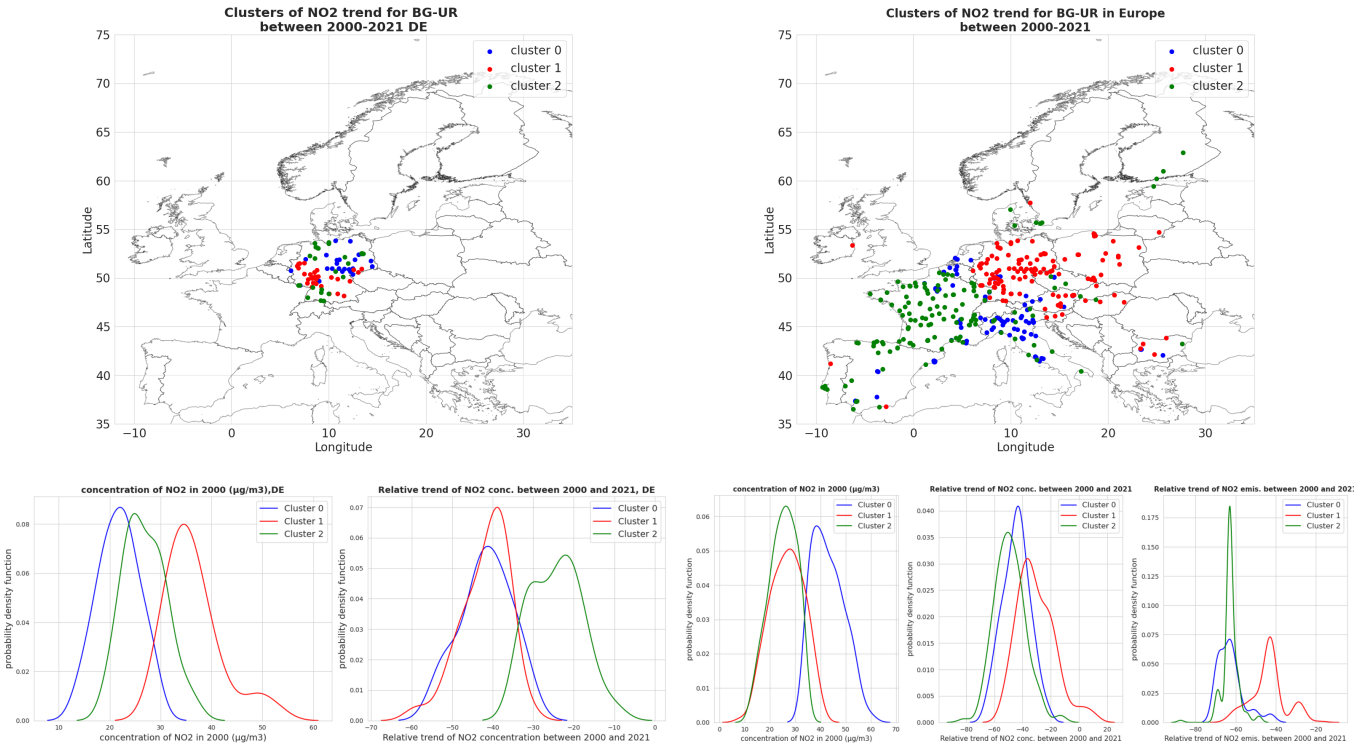

Figure A4.39: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

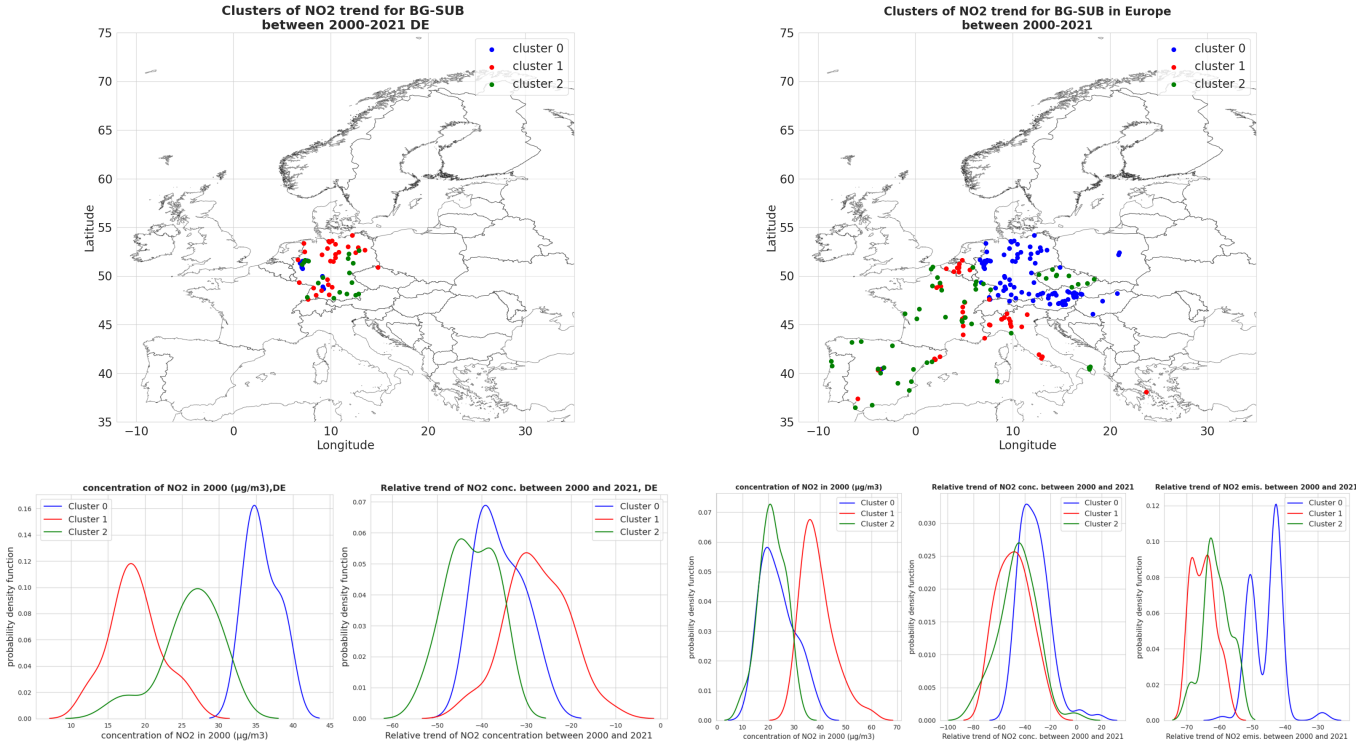

Figure A4.40: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

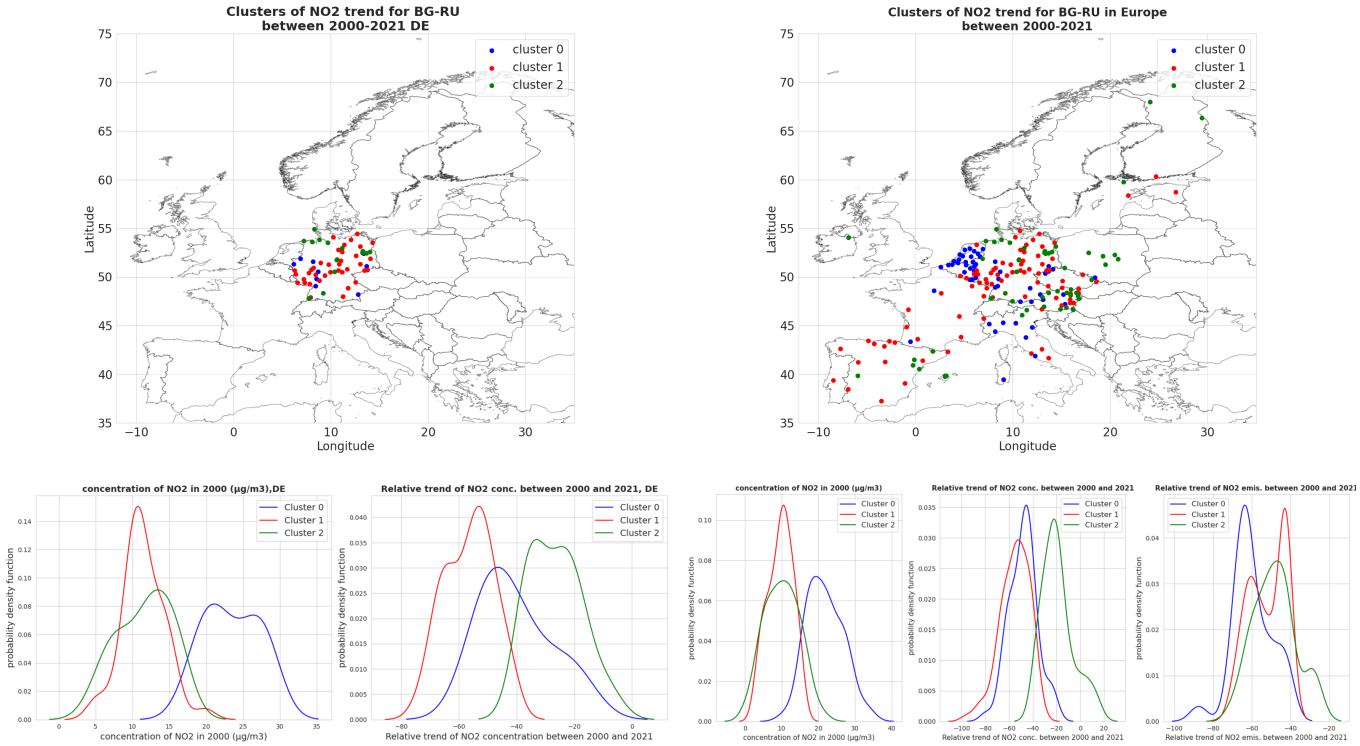

Figure A4.41: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

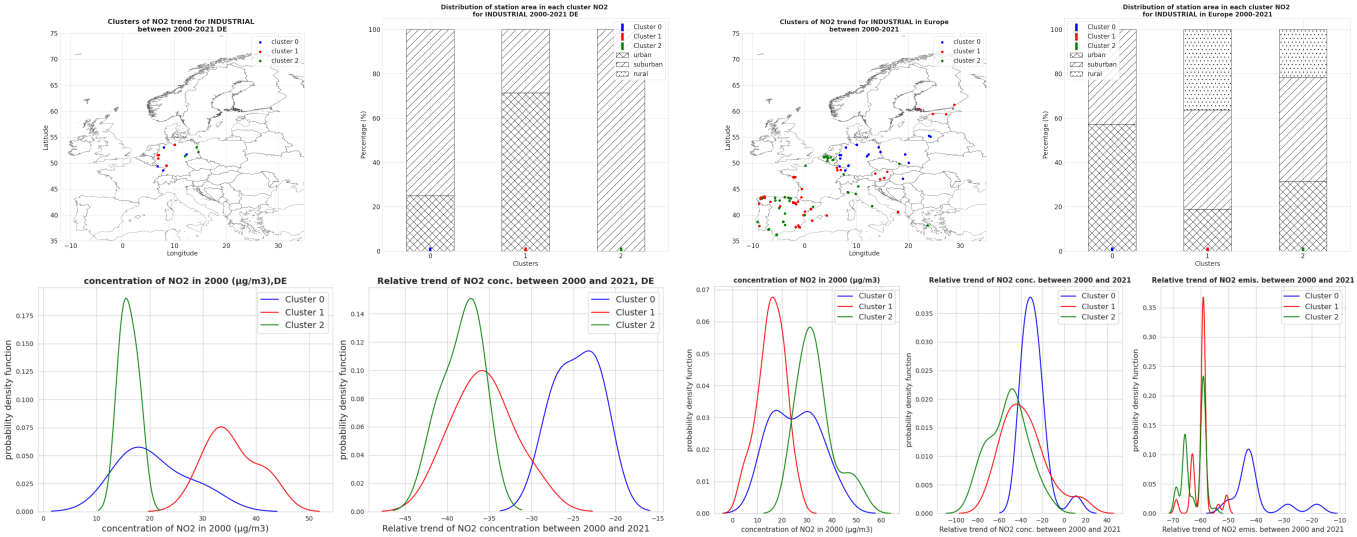

Figure A4.42: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

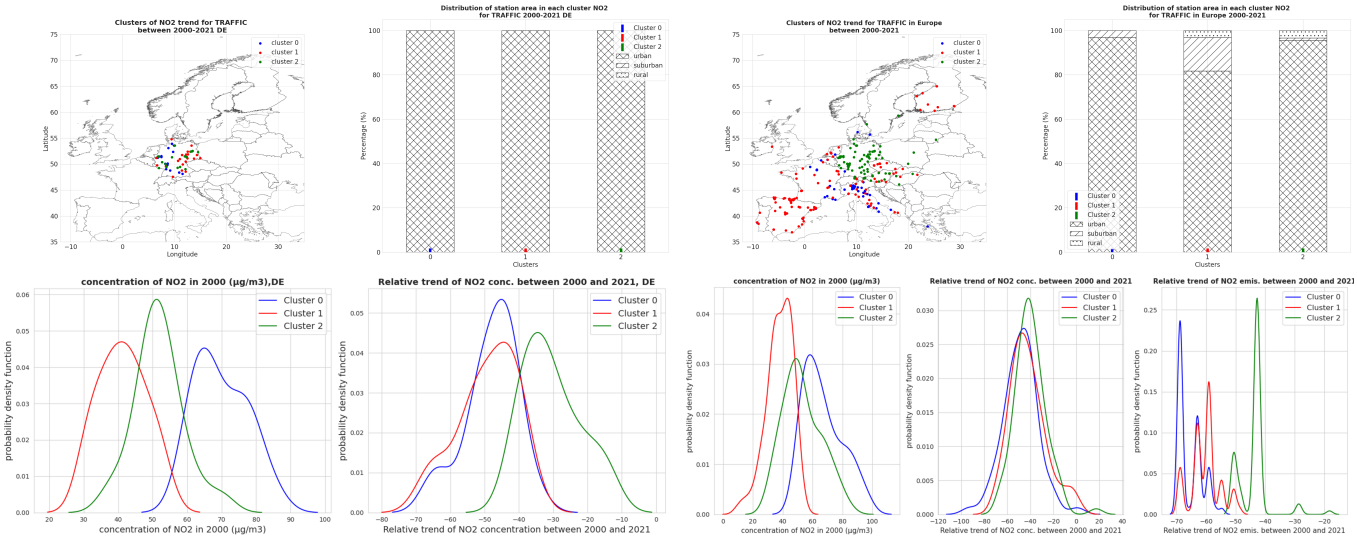

Figure A4.43: Clustering of the Germany (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

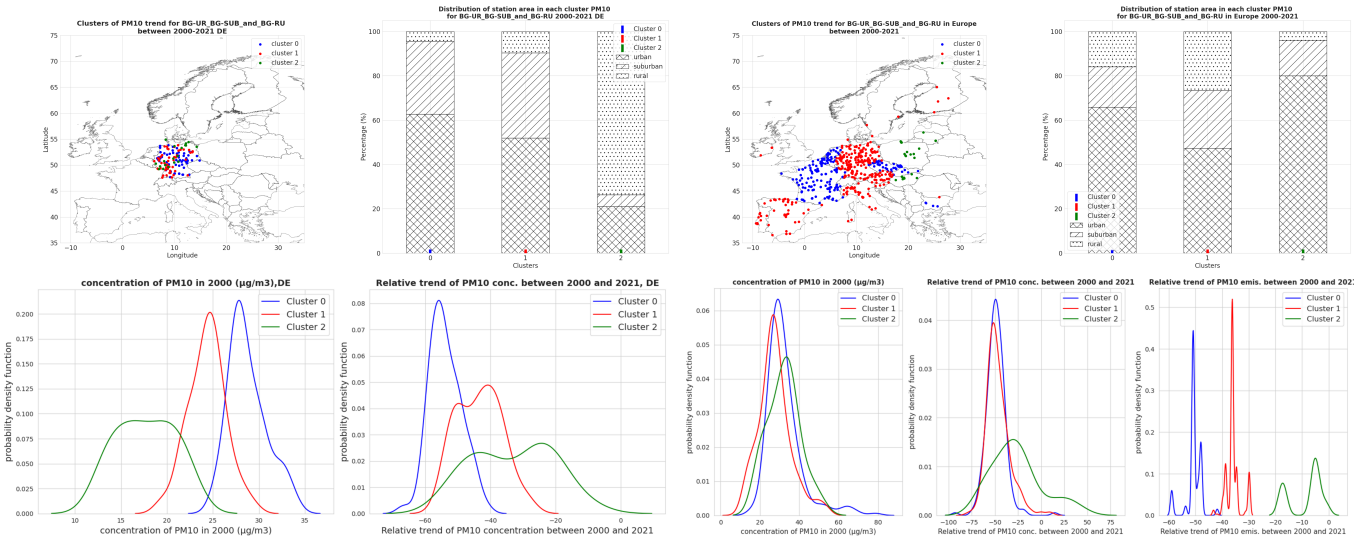

Figure A4.44: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

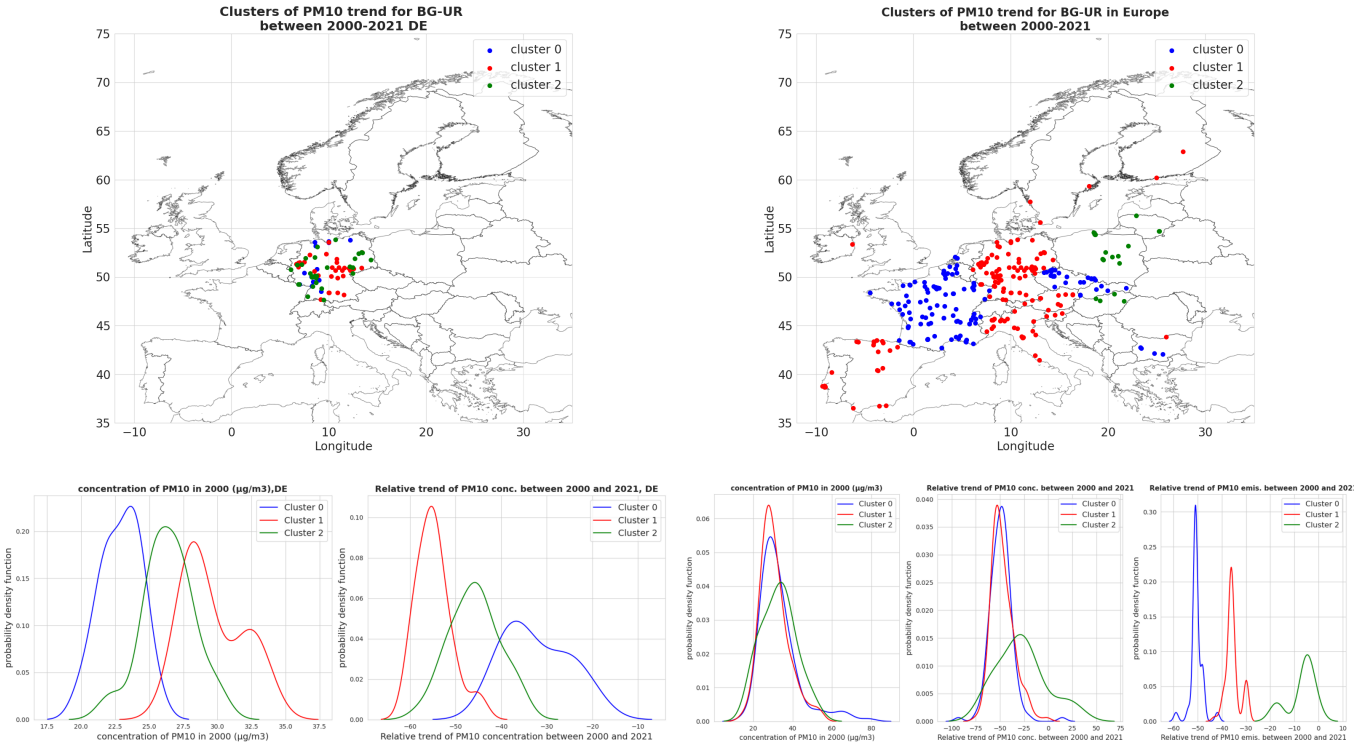

Figure A4.45: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

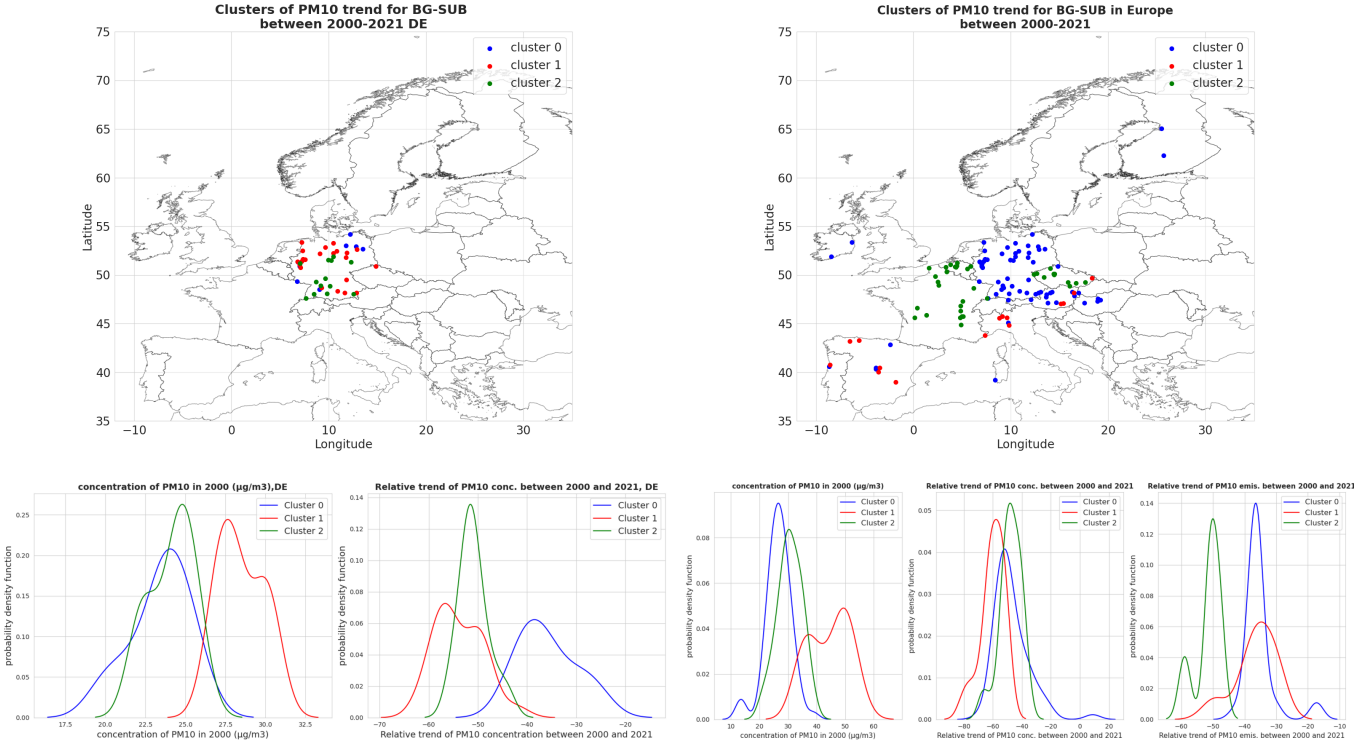

Figure A4.46: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

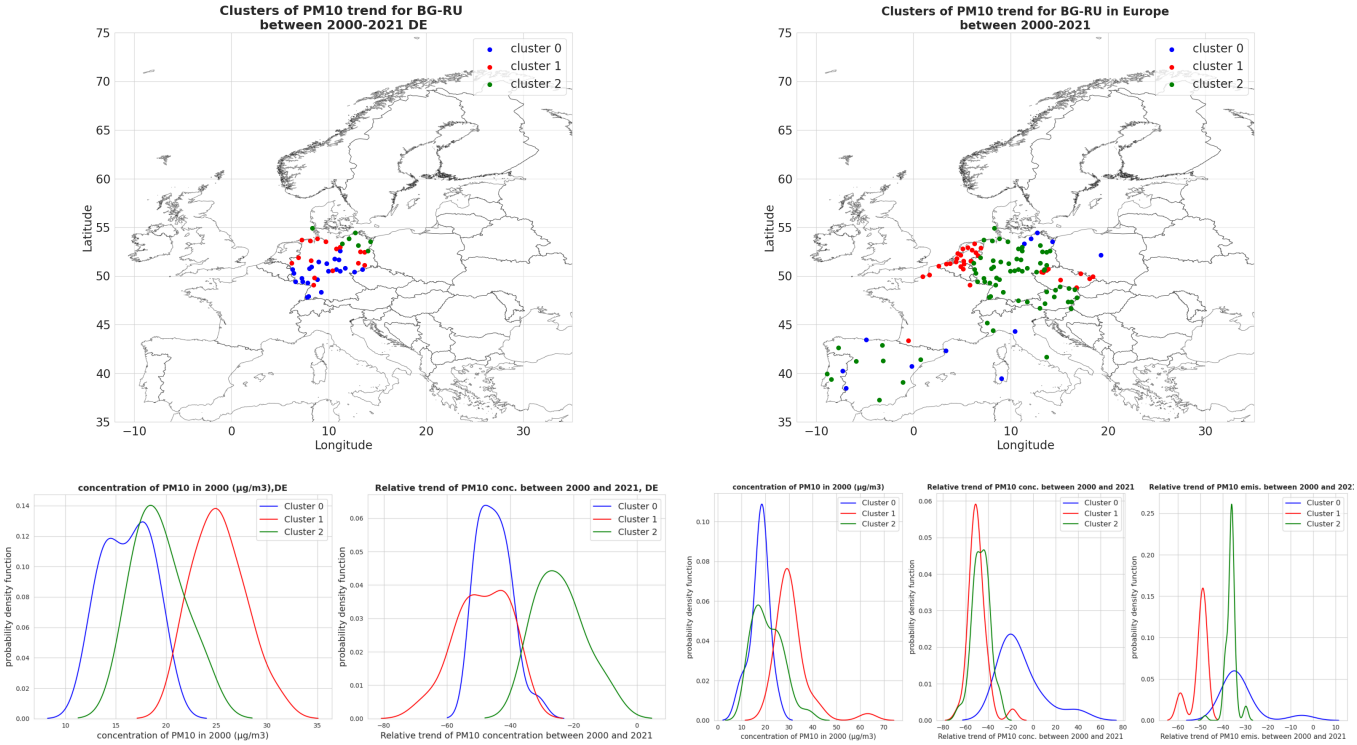

Figure A4.47: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

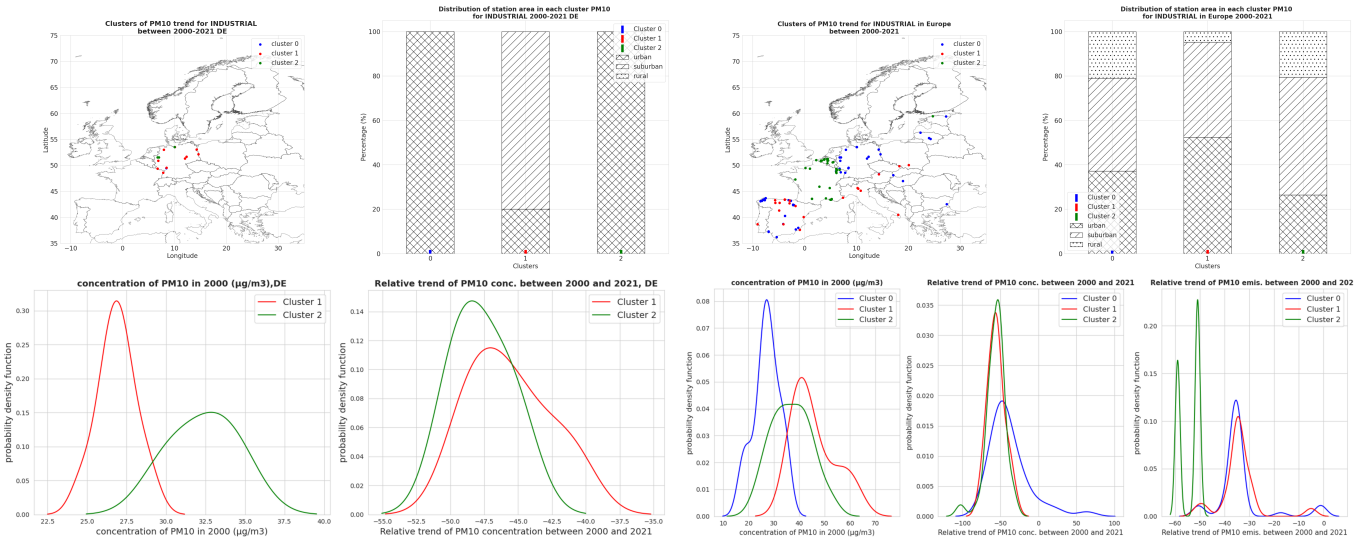

Figure A4.48: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

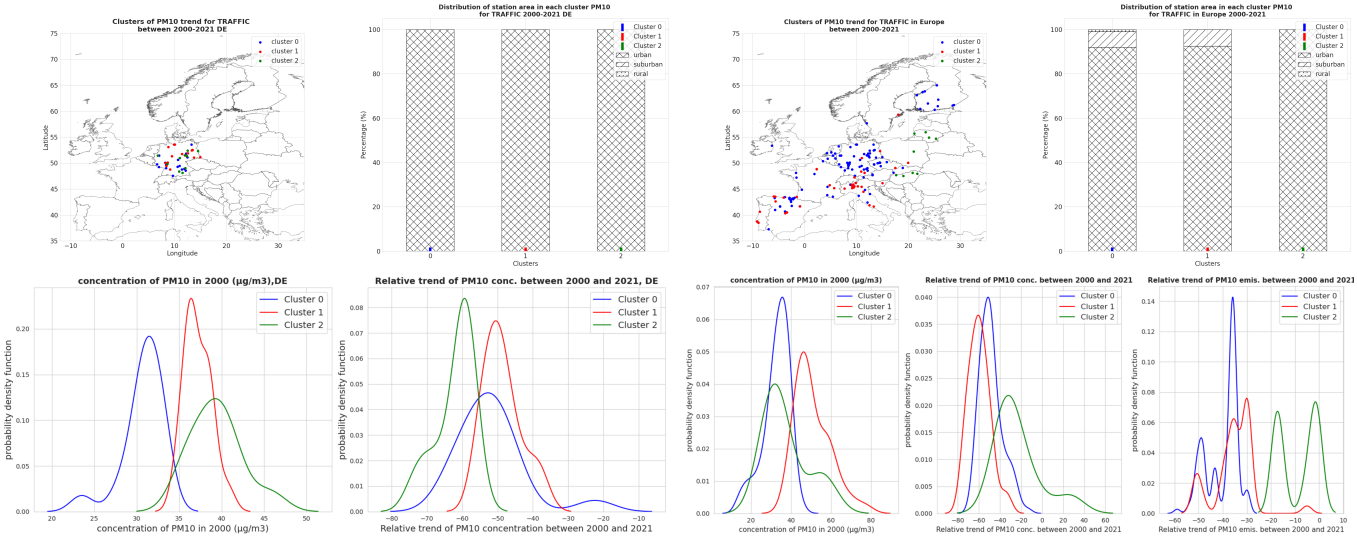

Figure A4.49: Clustering of the Germany (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

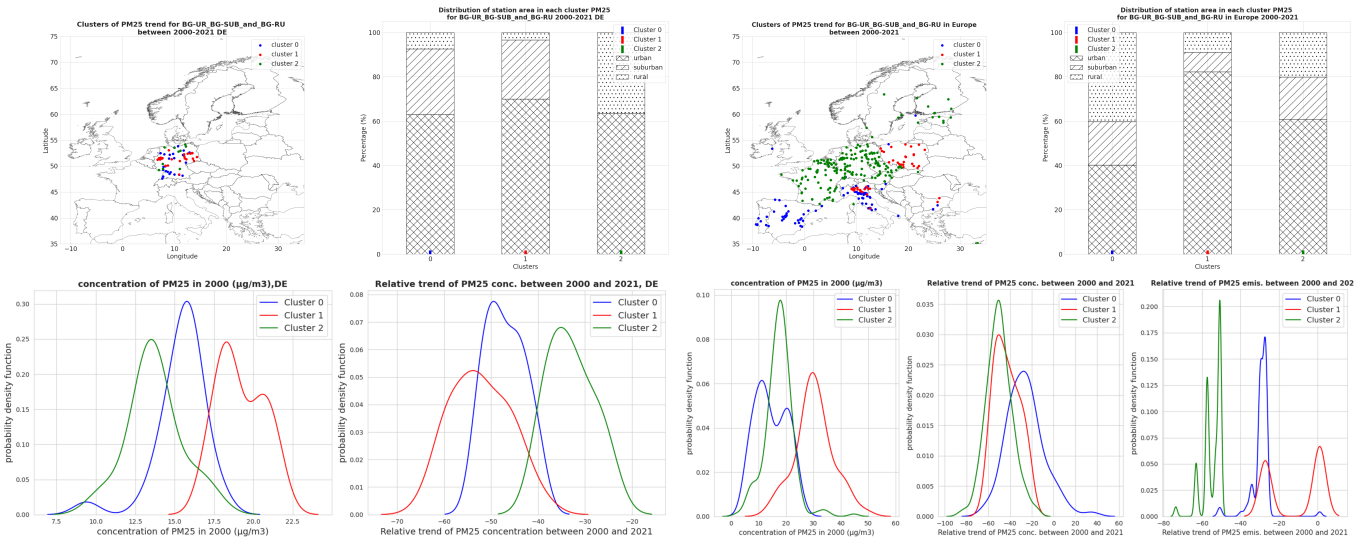

Figure A4.50: Clustering of the Germany (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

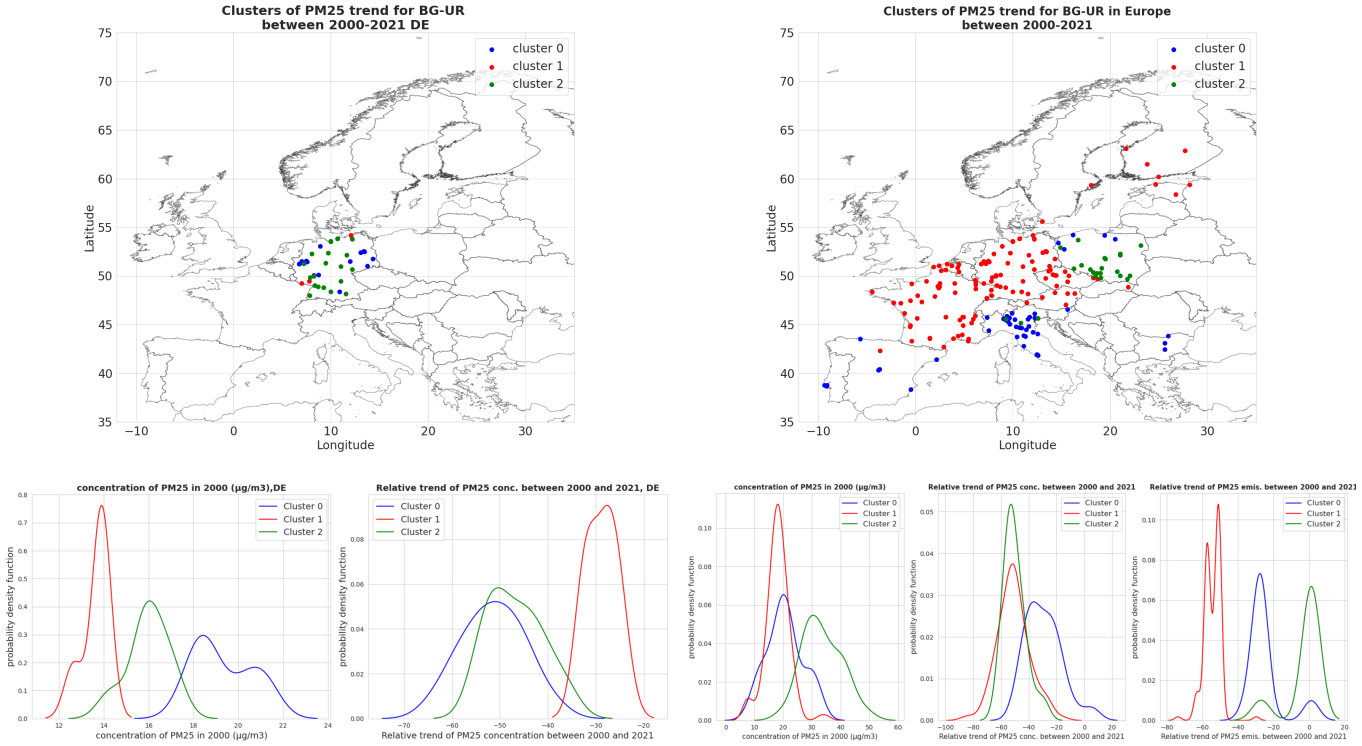

Figure A4.51: Clustering of the Germany (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

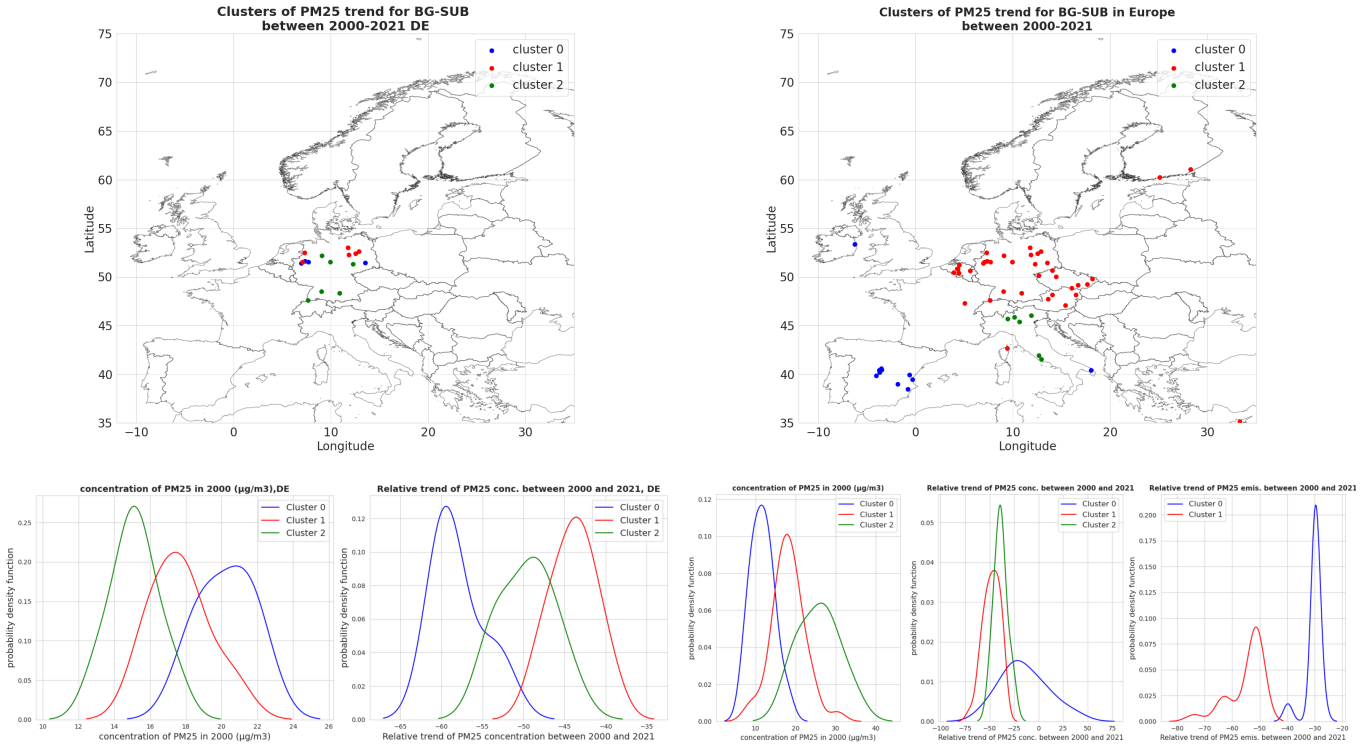

Figure A4.52: Clustering of the Germany (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

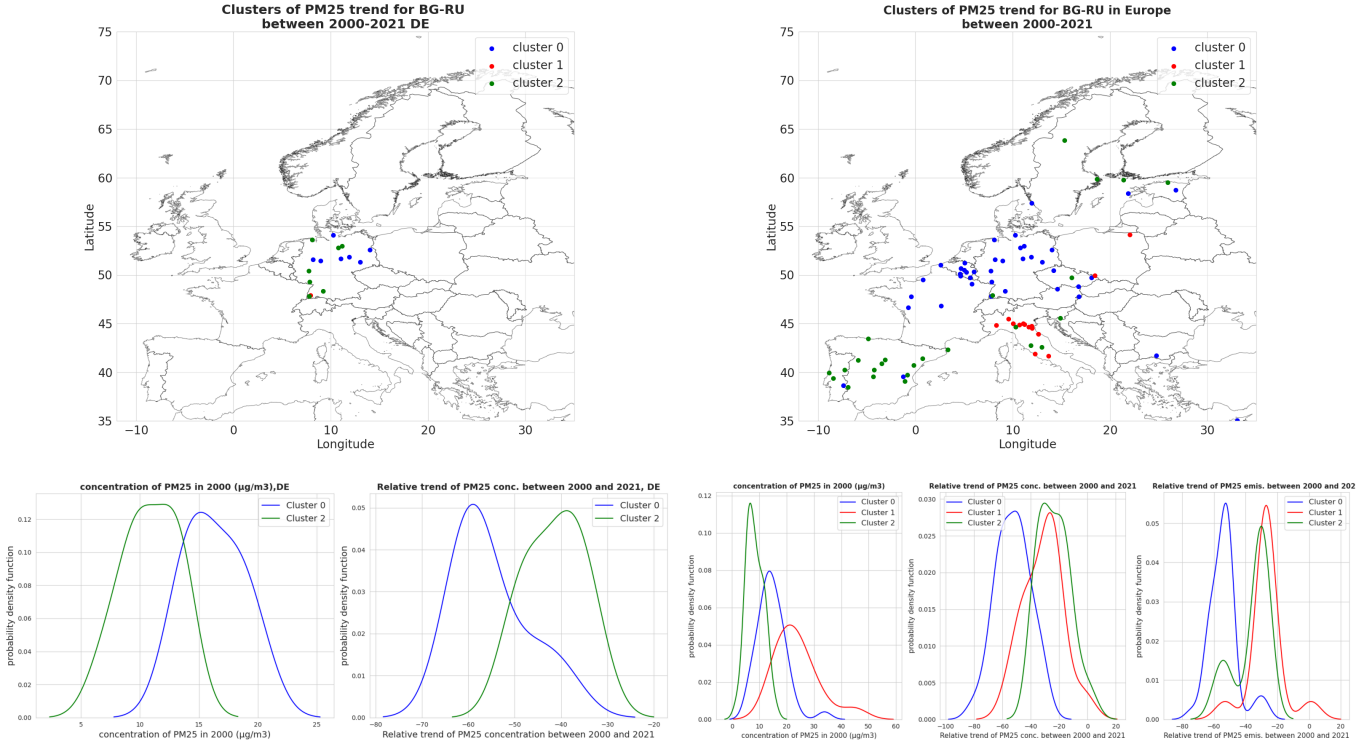

Figure A4.53: Clustering of the Germany (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

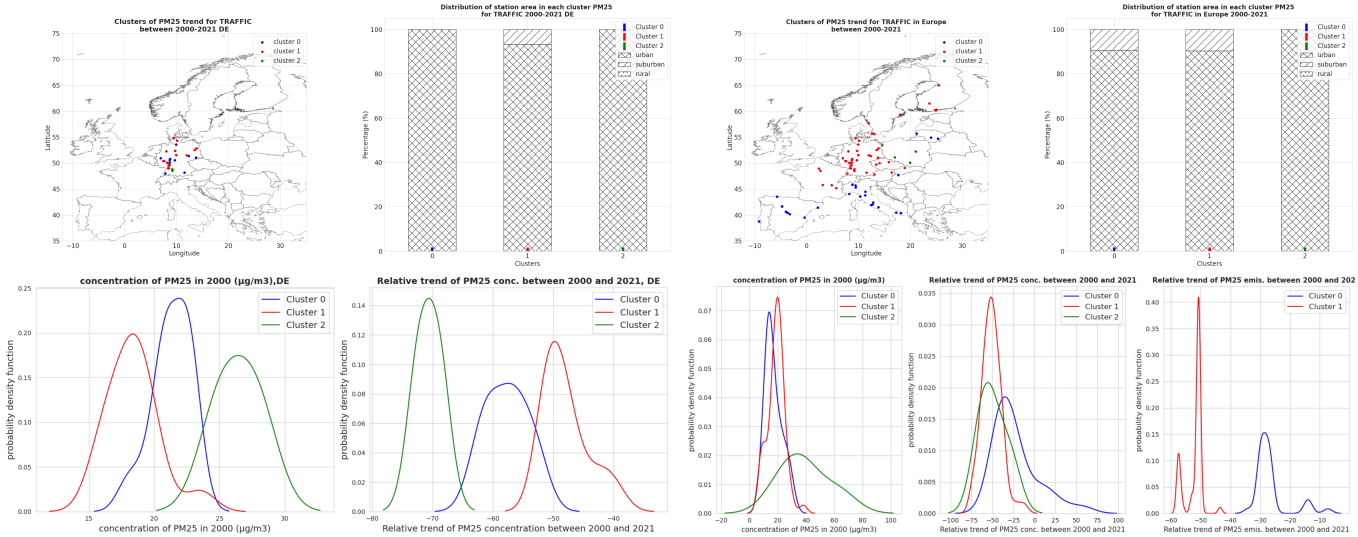

Figure A4.54: Clustering of the Germany (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

7 Denmark

The minimum number of stations required to assess the country-wise clustering is not met.

8 Estonia

The minimum number of stations required to assess the country-wise clustering is not met.

9 Spain

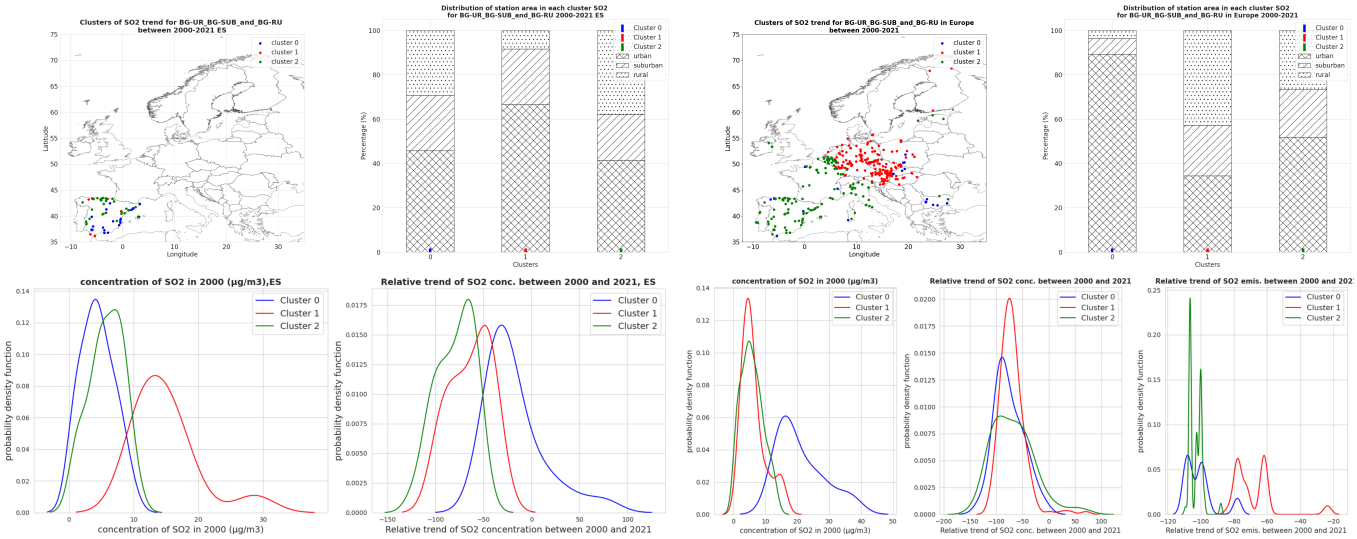

Figure A4.55: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

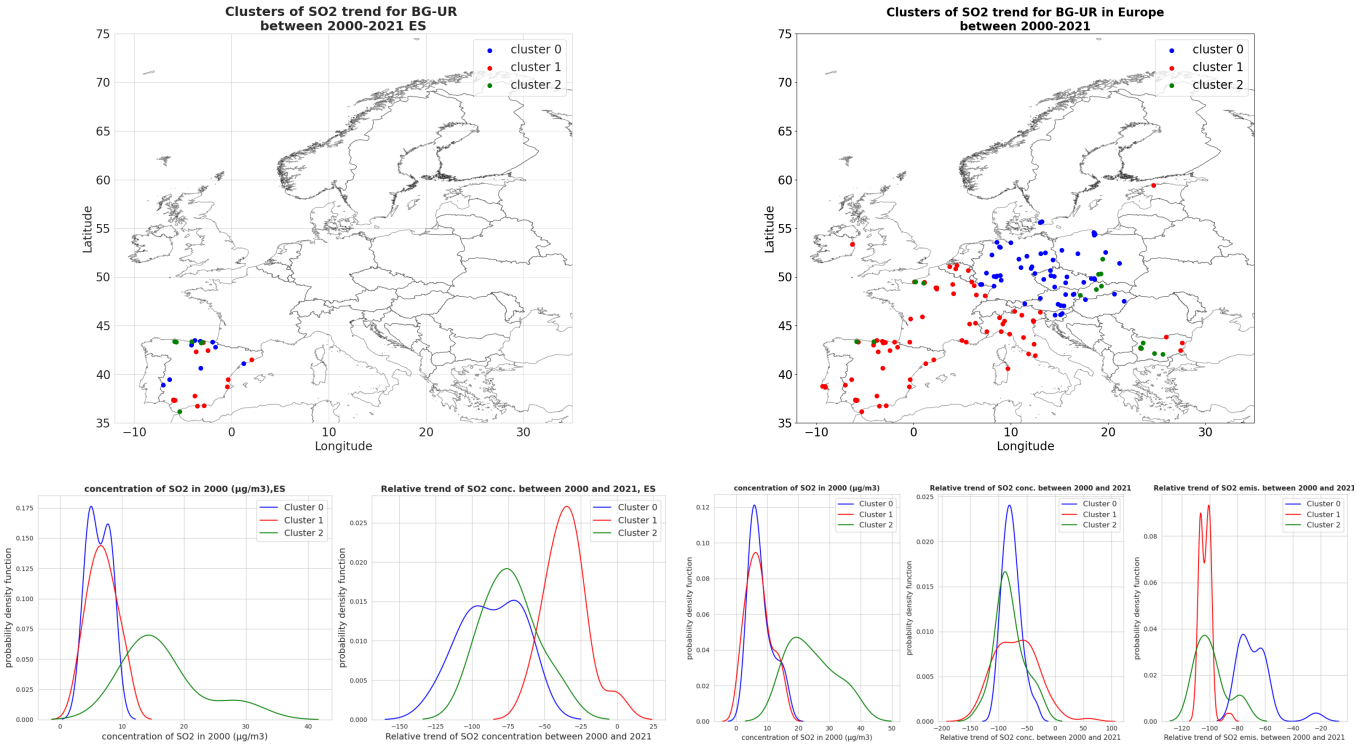

Figure A4.56: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

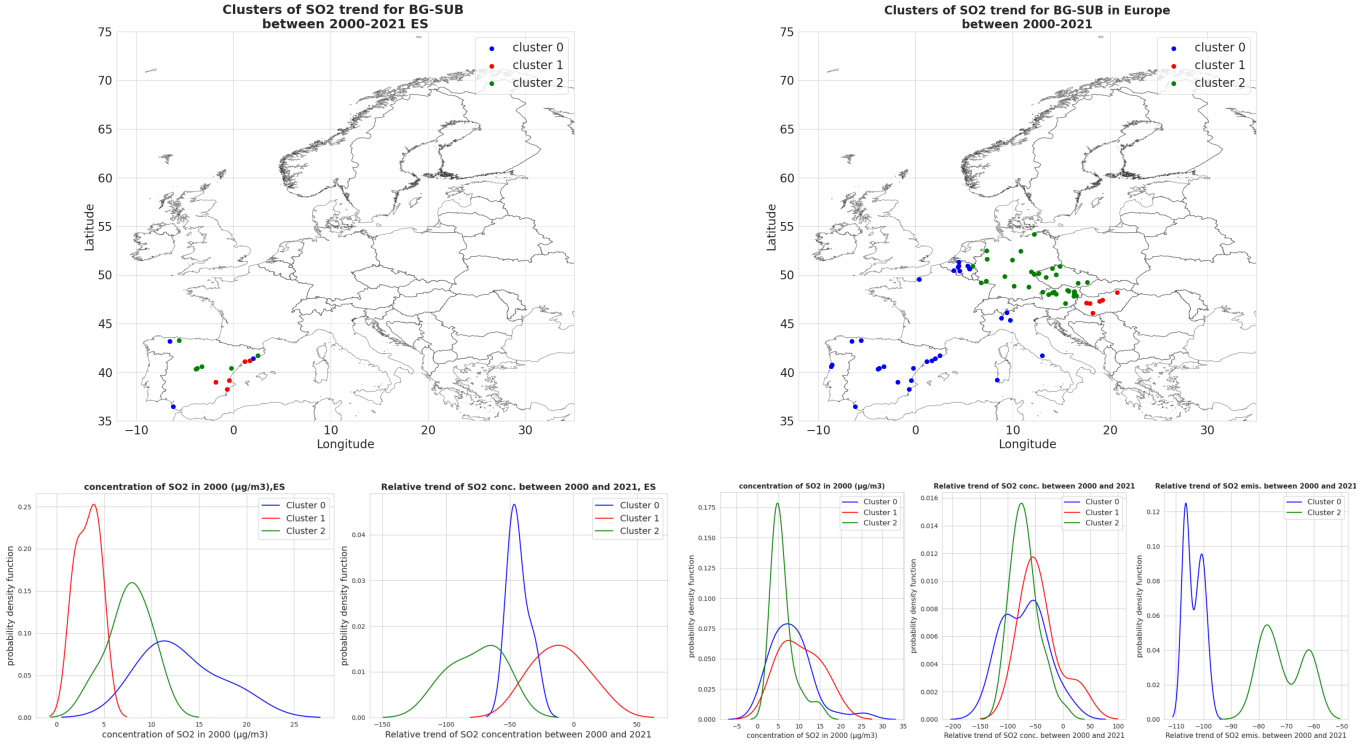

Figure A4.57: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

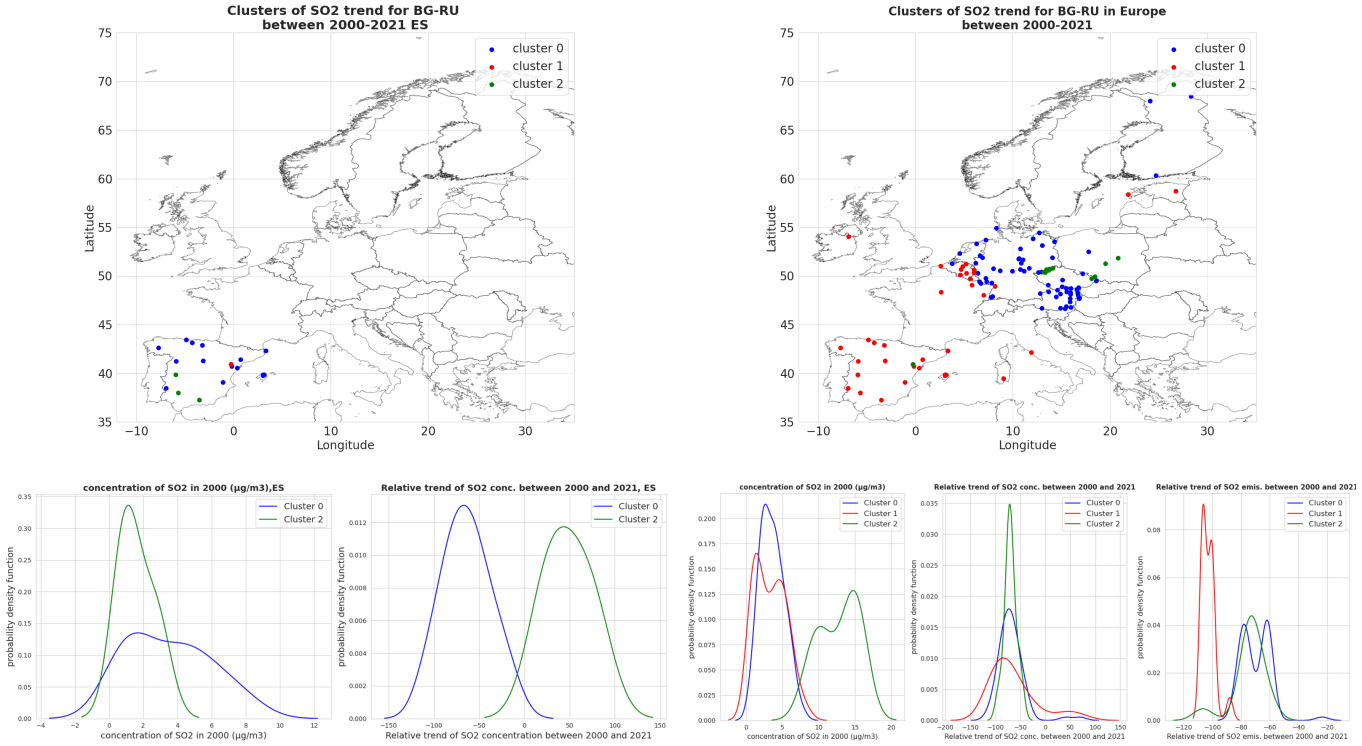

Figure A4.58: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

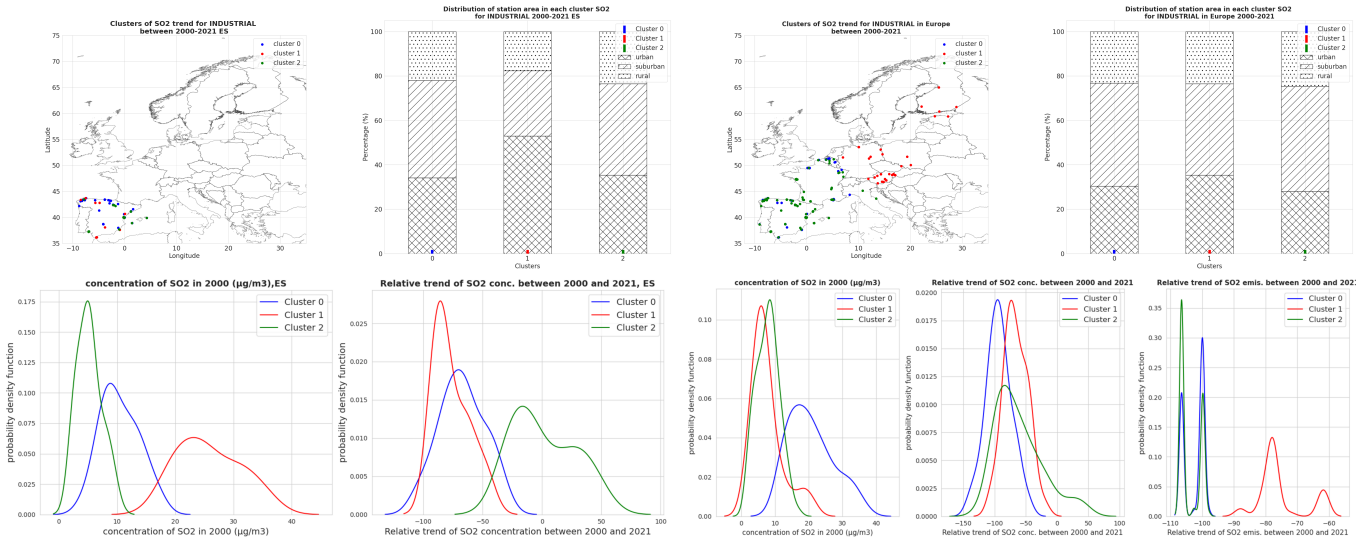

Figure A4.59: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

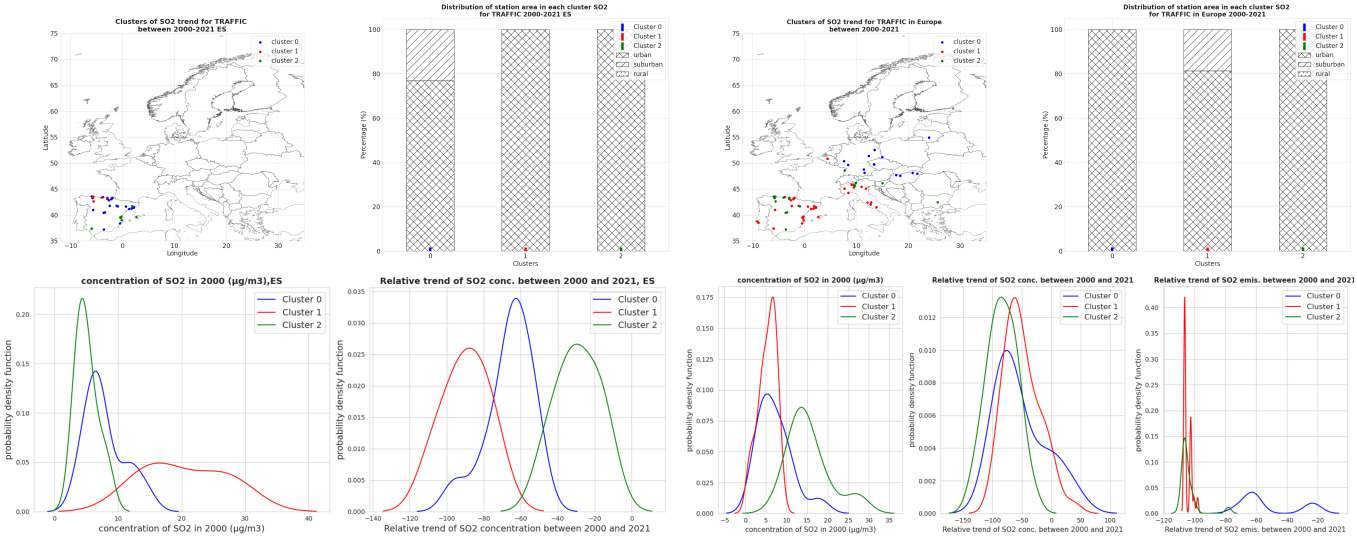

Figure A4.60: Clustering of the Spain (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

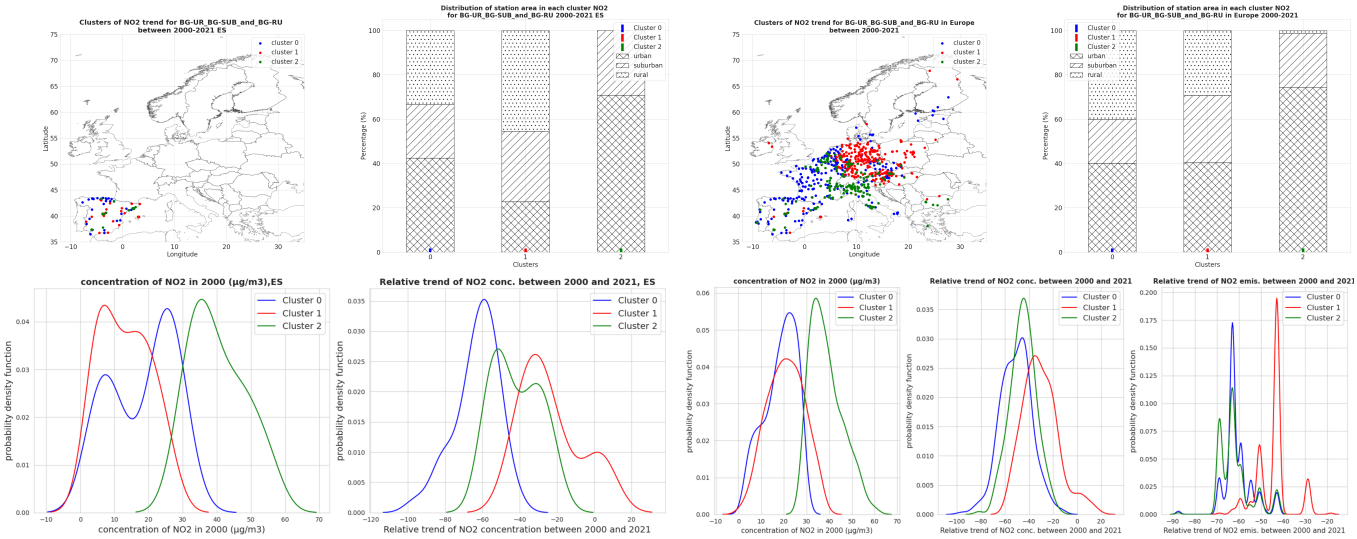

Figure A4.61: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

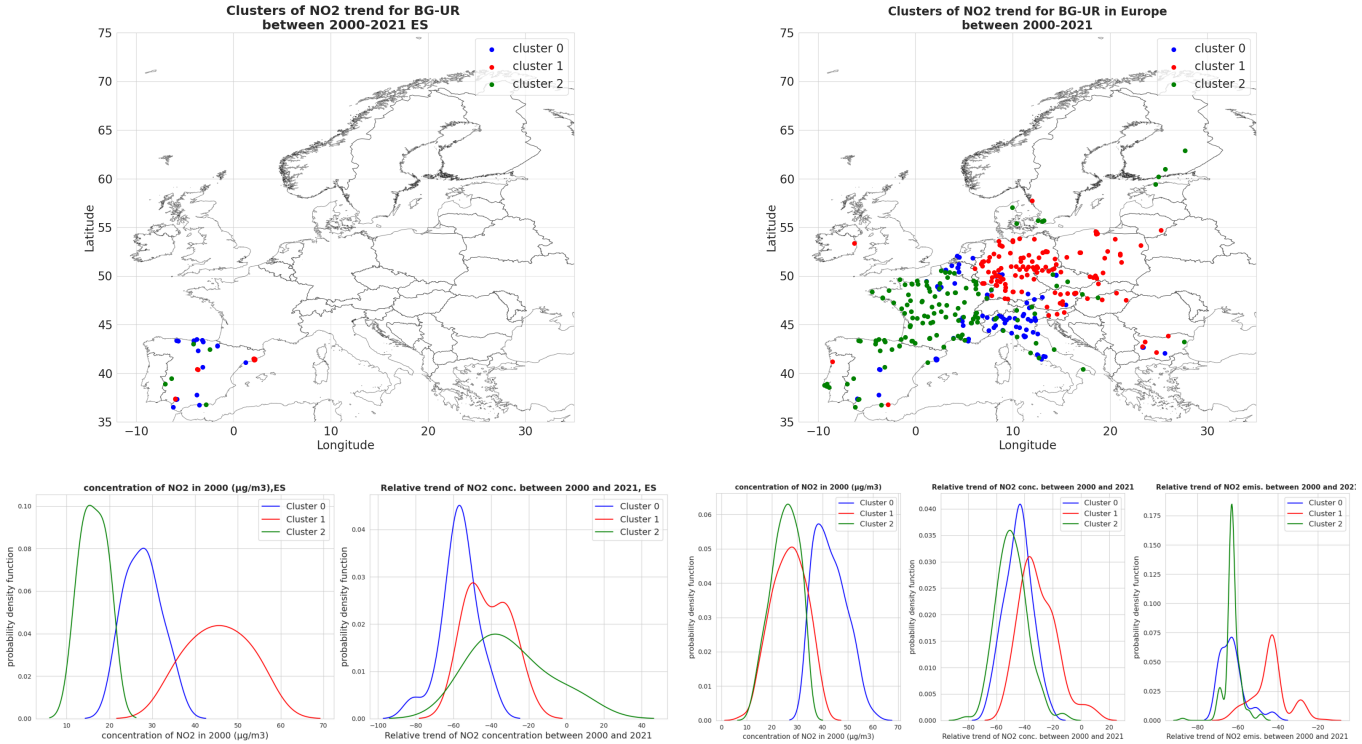

Figure A4.62: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

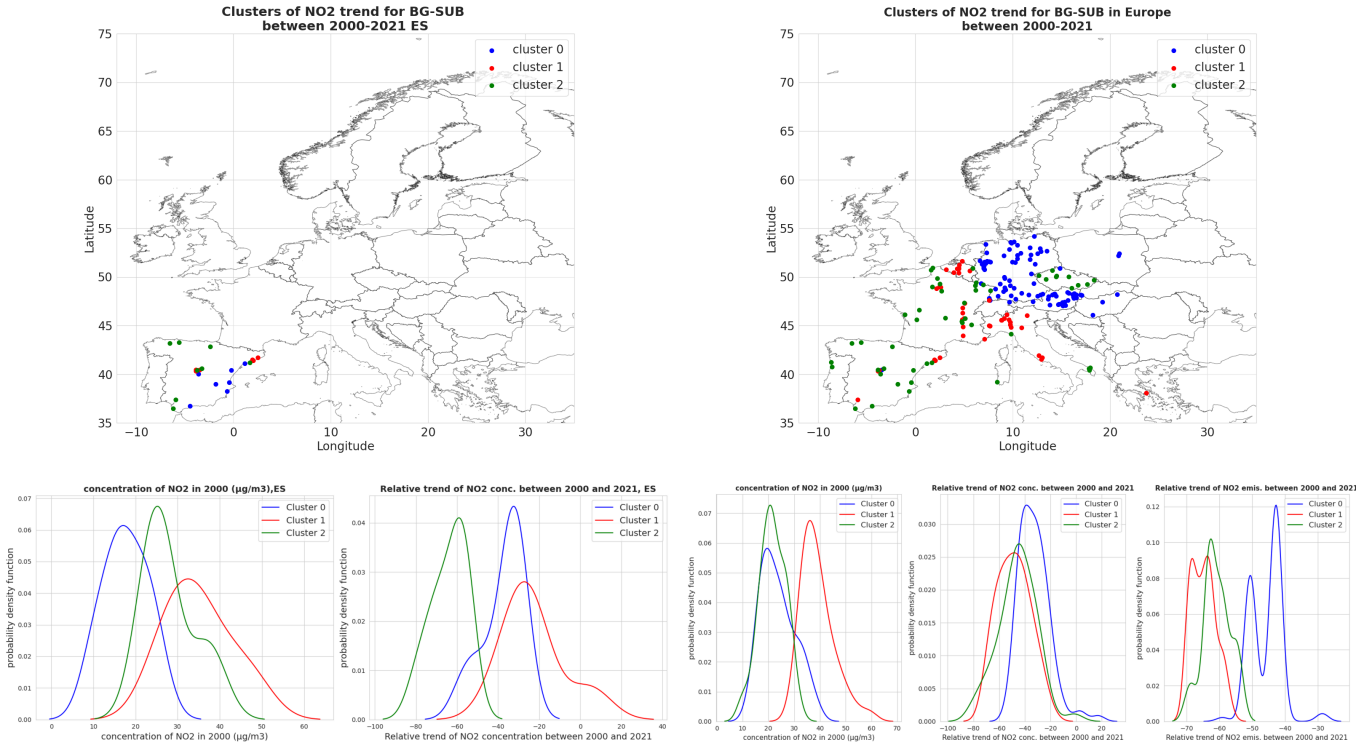

Figure A4.63: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

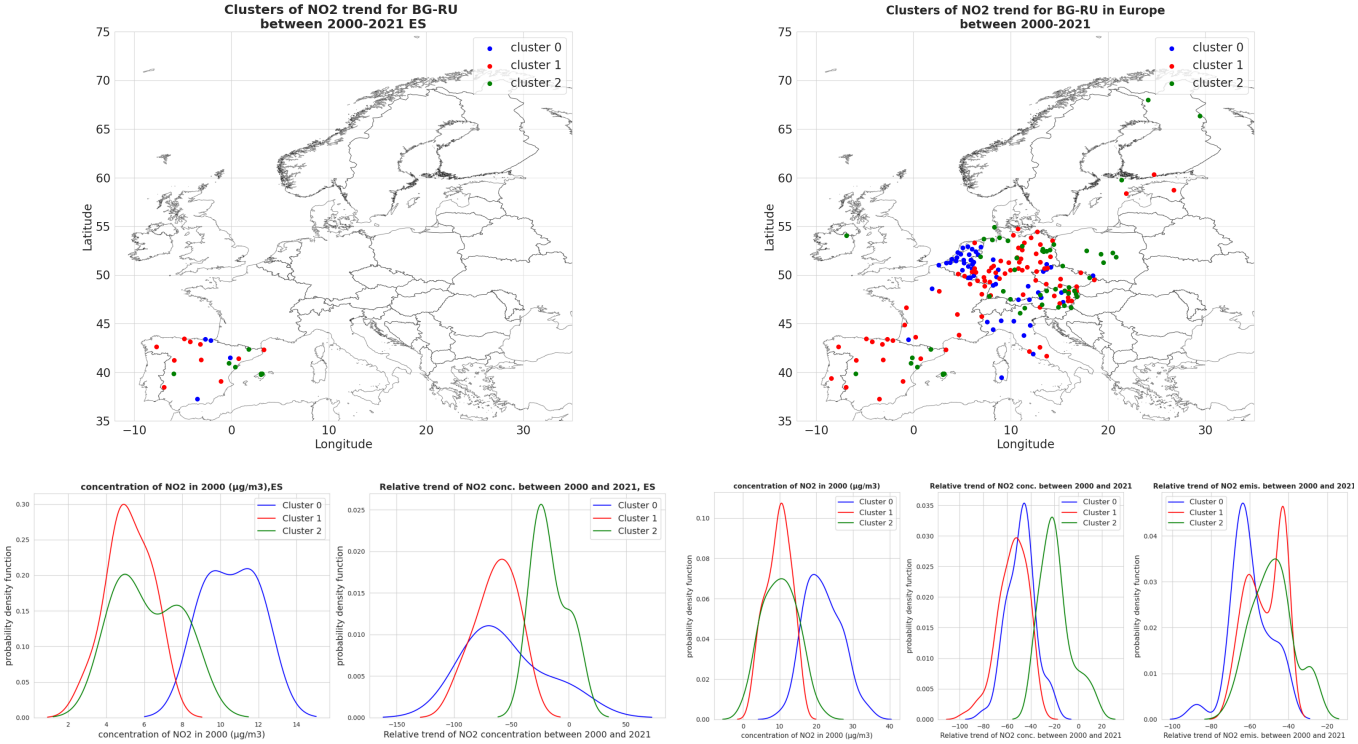

Figure A4.64: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

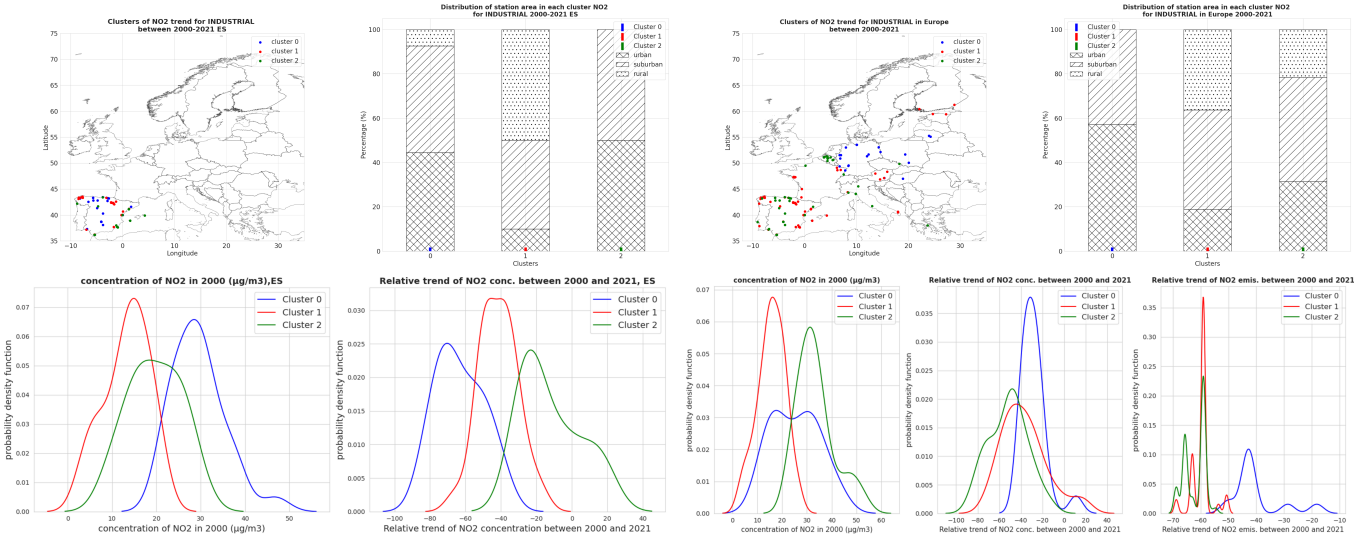

Figure A4.65: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

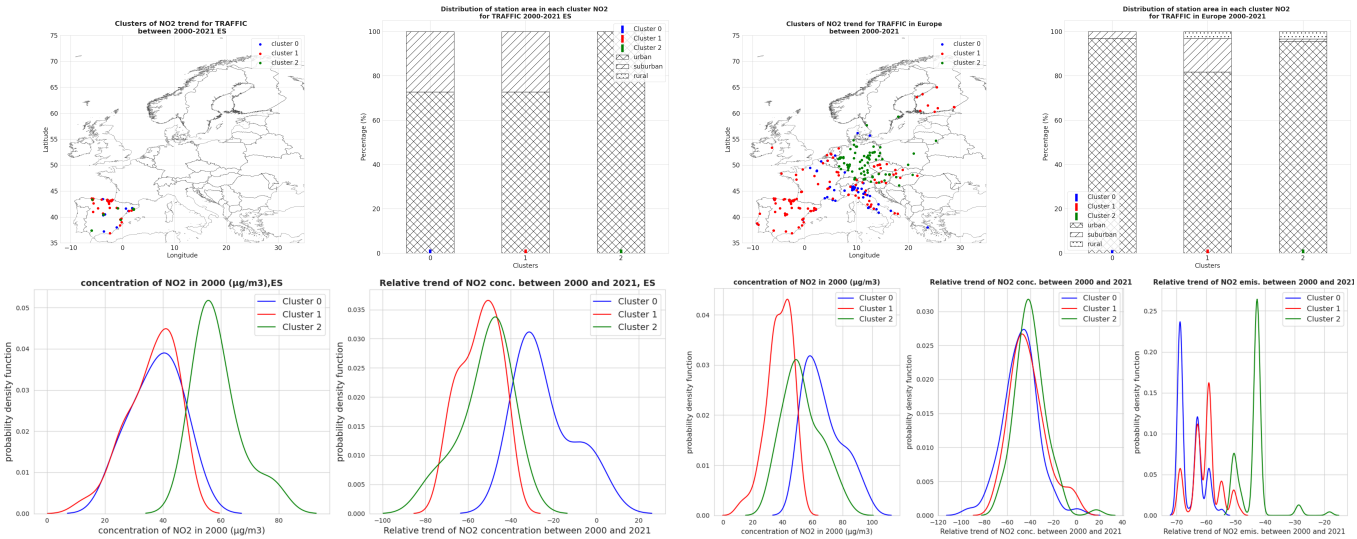

Figure A4.66: Clustering of the Spain (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

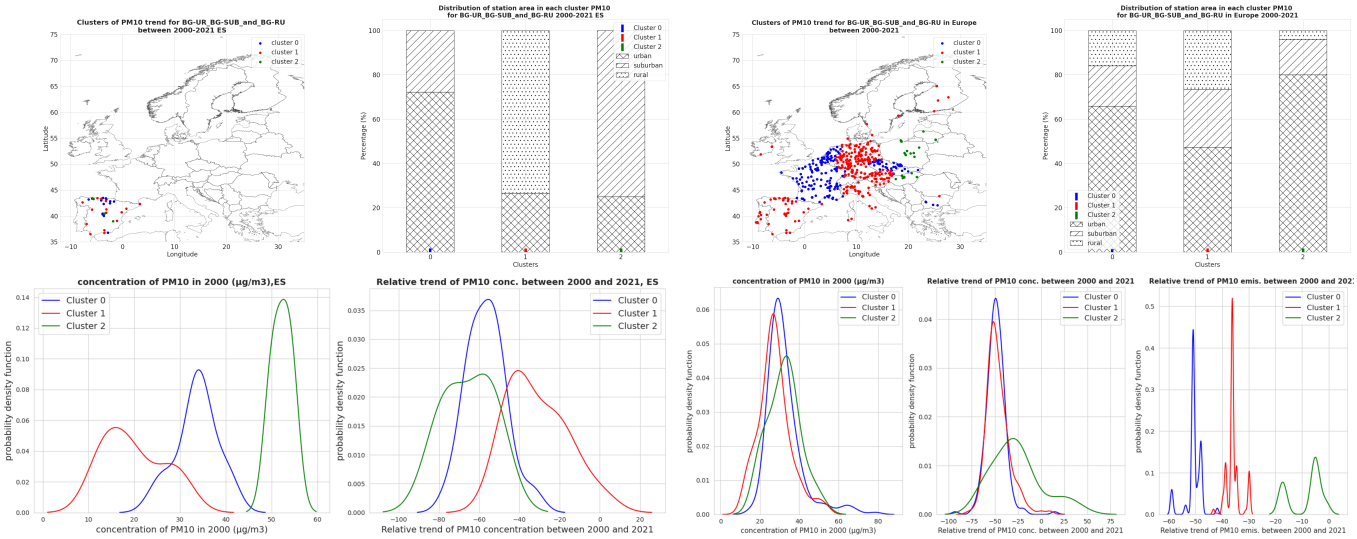

Figure A4.67: Clustering of the Spain (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

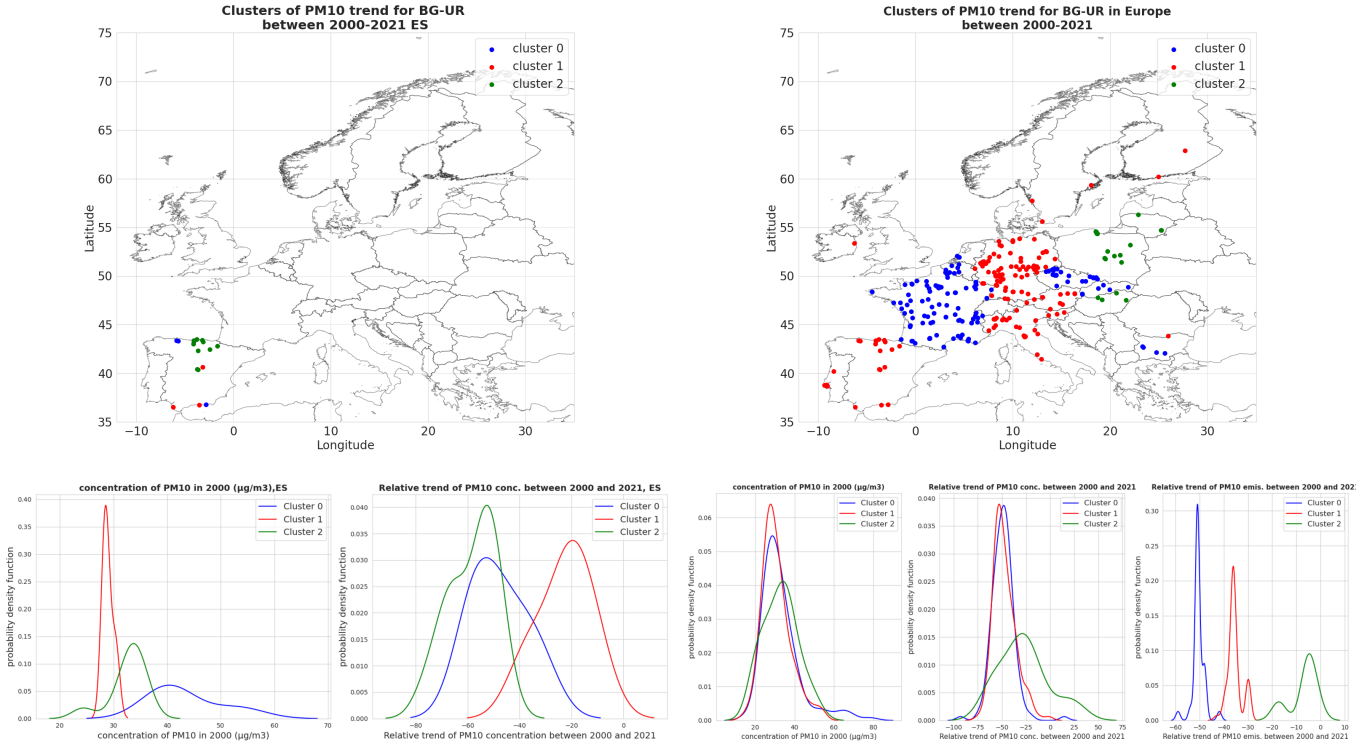

Figure A4.68: Clustering of the Spain (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

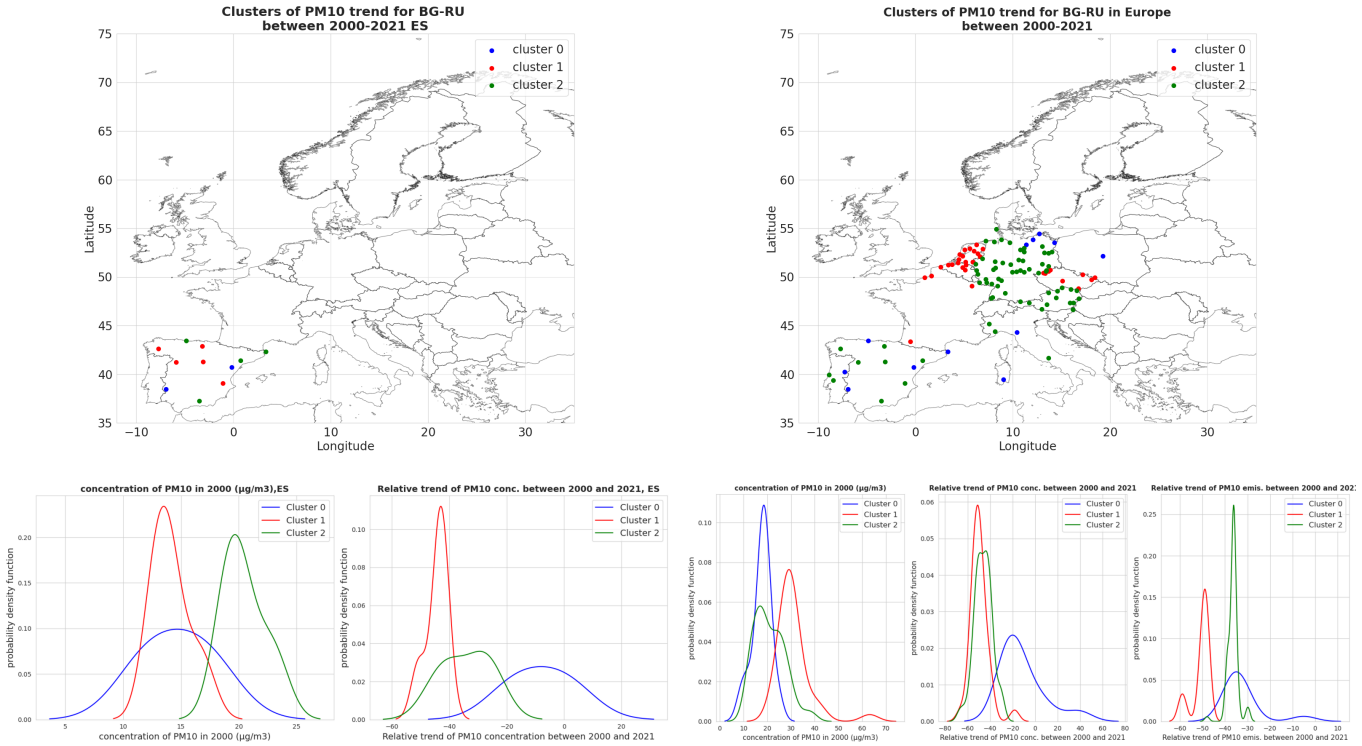

Figure A4.69: Clustering of the Spain (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

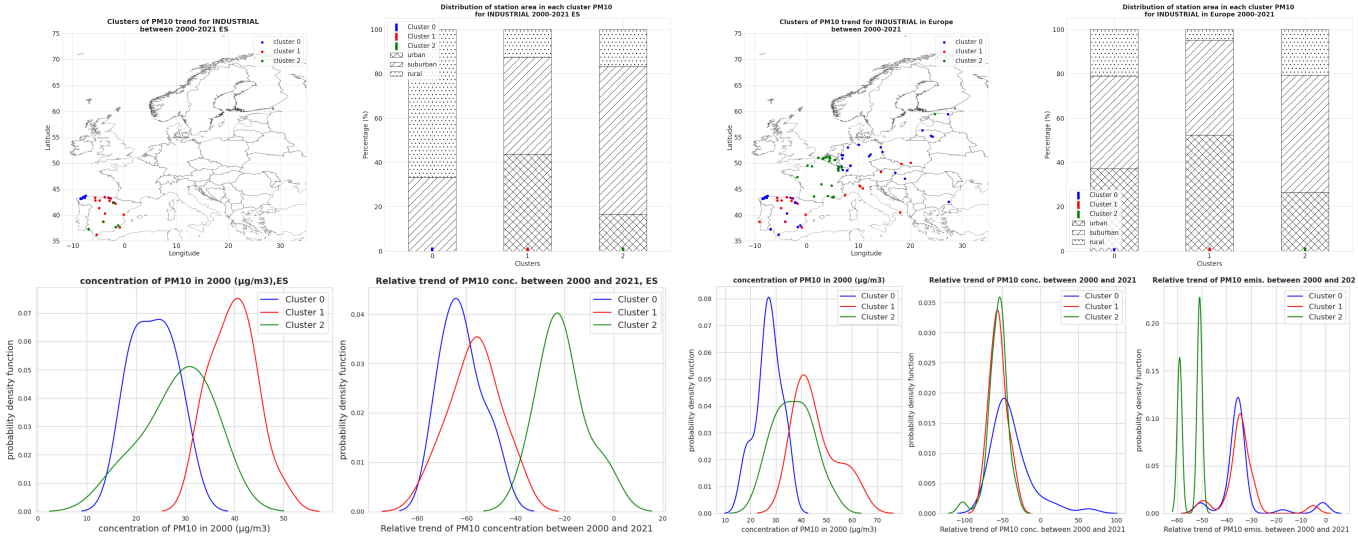

Figure A4.70: Clustering of the Spain (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

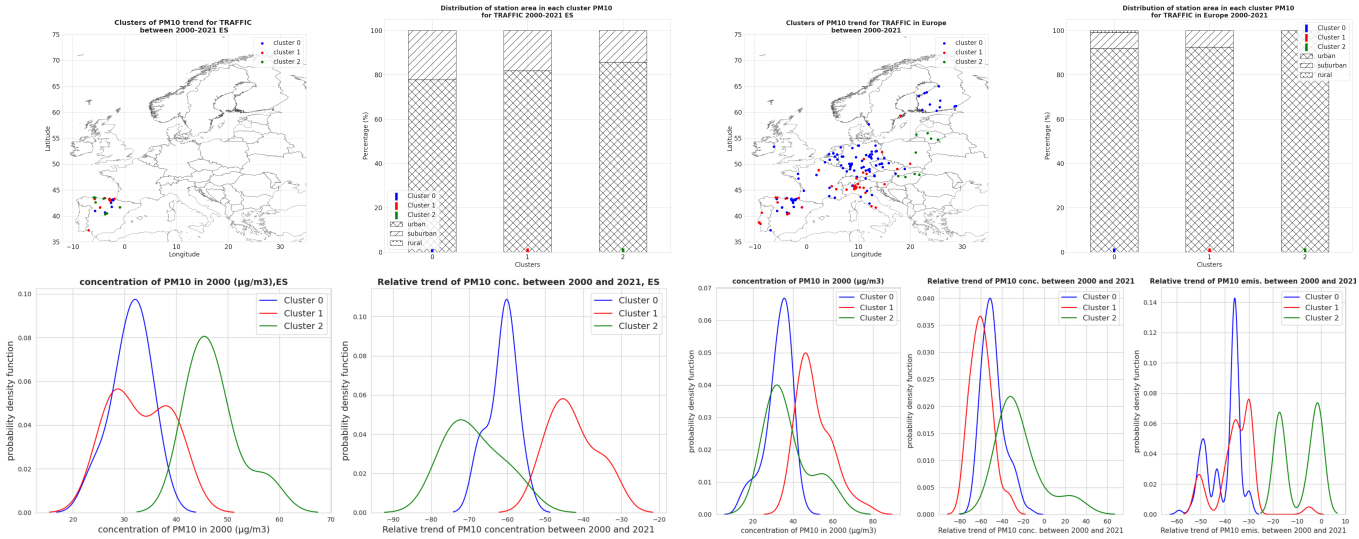

Figure A4.71: Clustering of the Spain (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

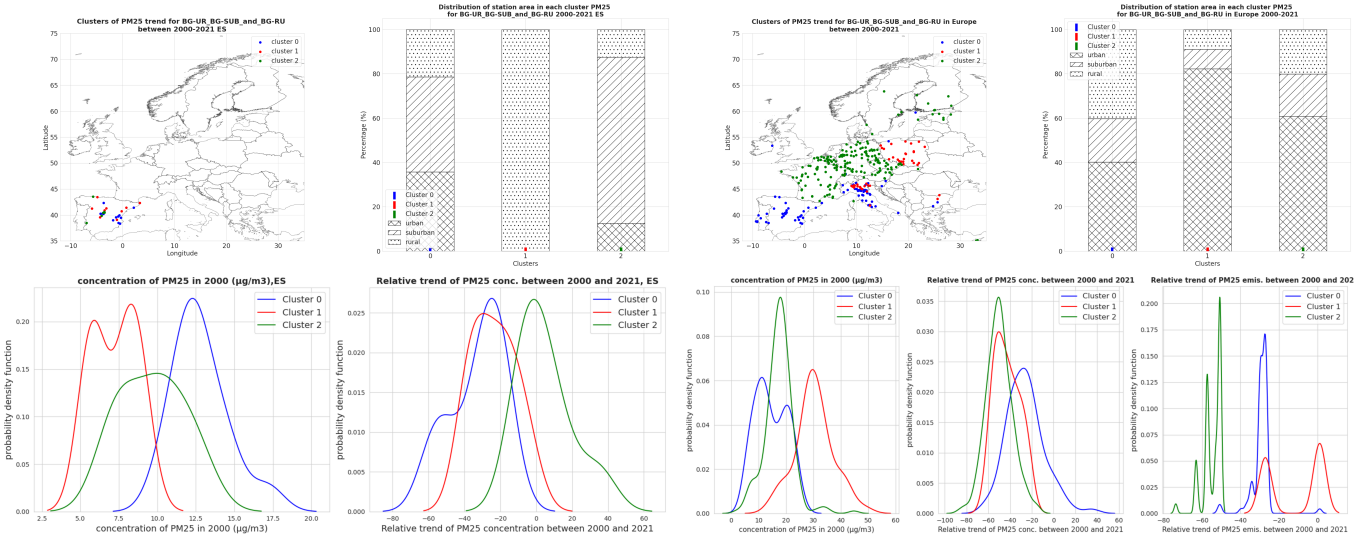

Figure A4.72: Clustering of the Spain (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

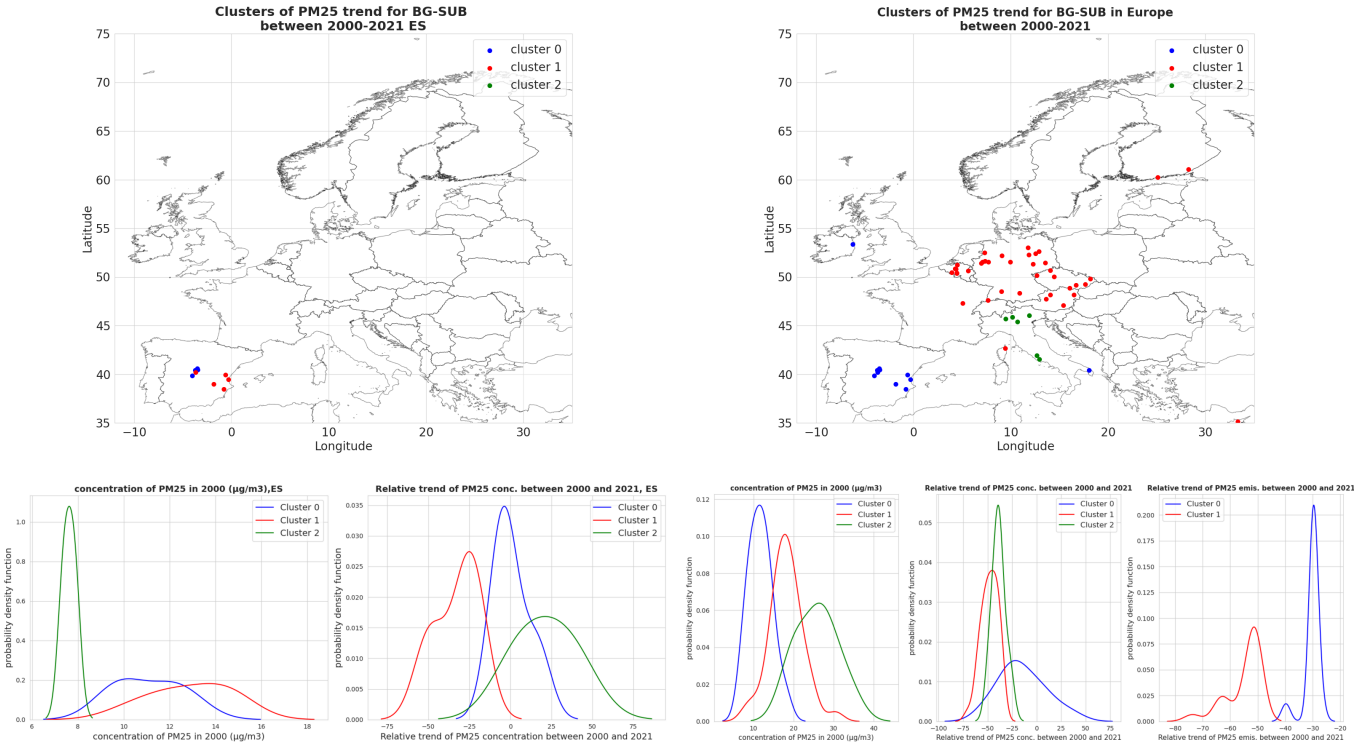

Figure A4.73: Clustering of the Spain (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

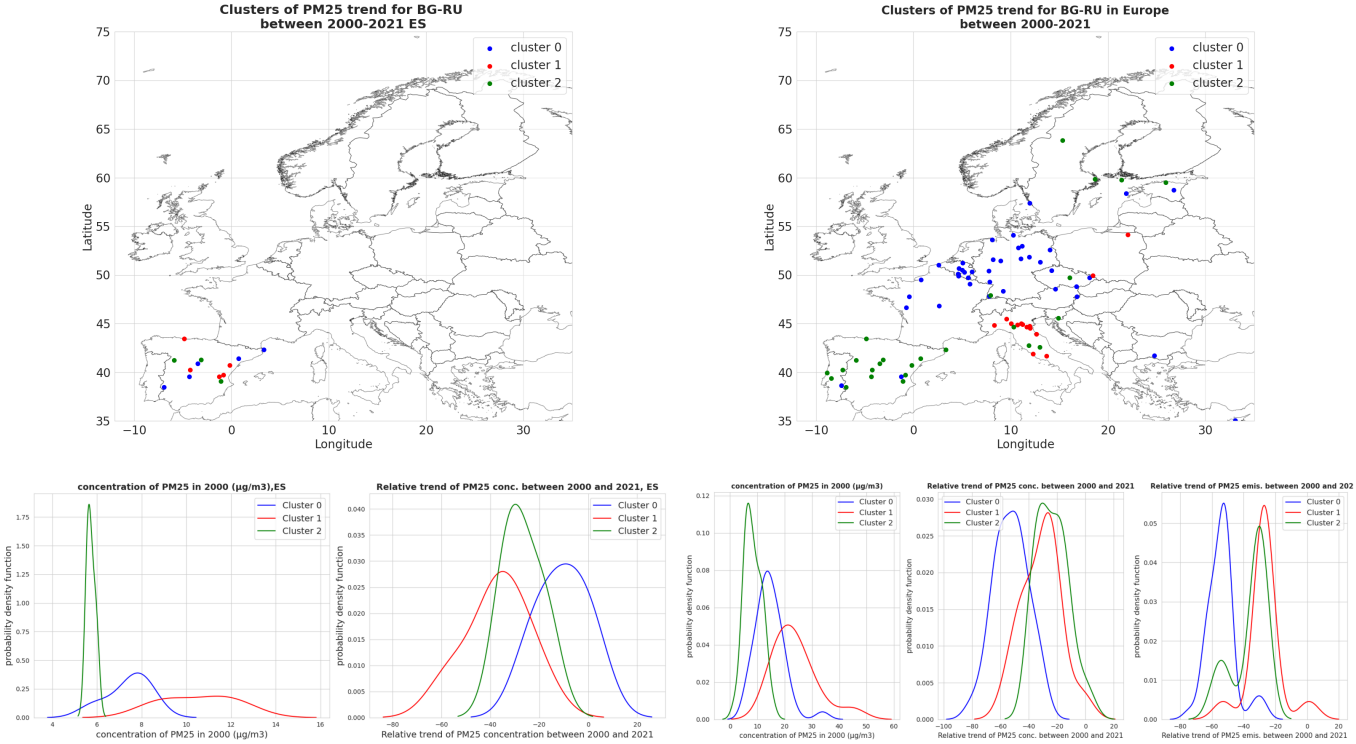

Figure A4.74: Clustering of the Spain (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

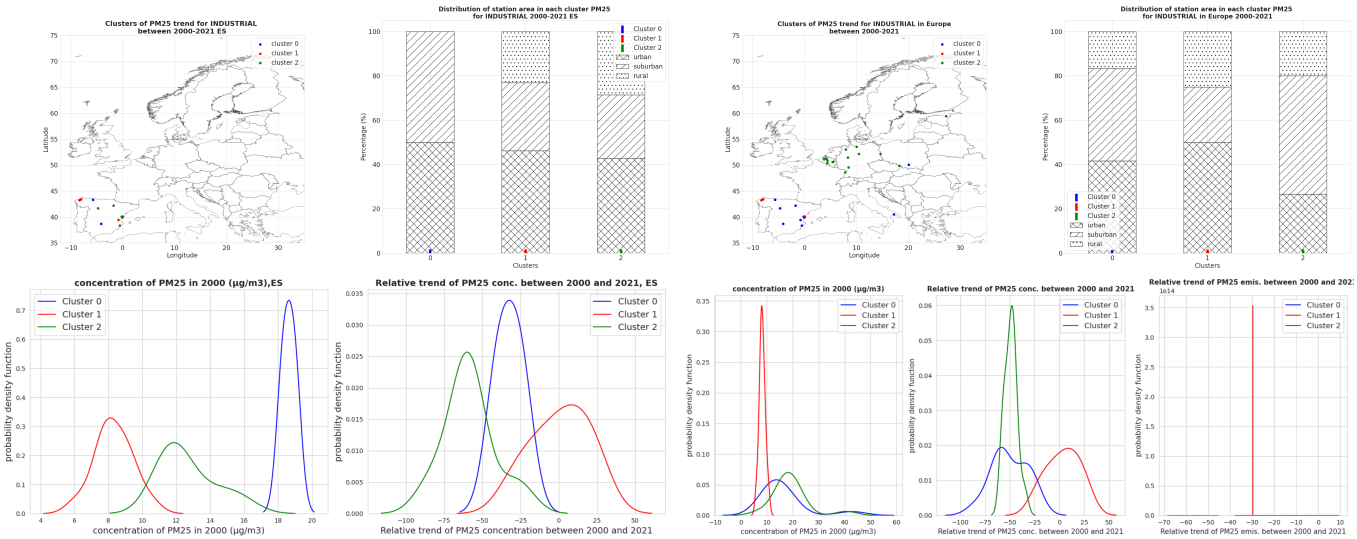

Figure A4.75: Clustering of the Spain (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

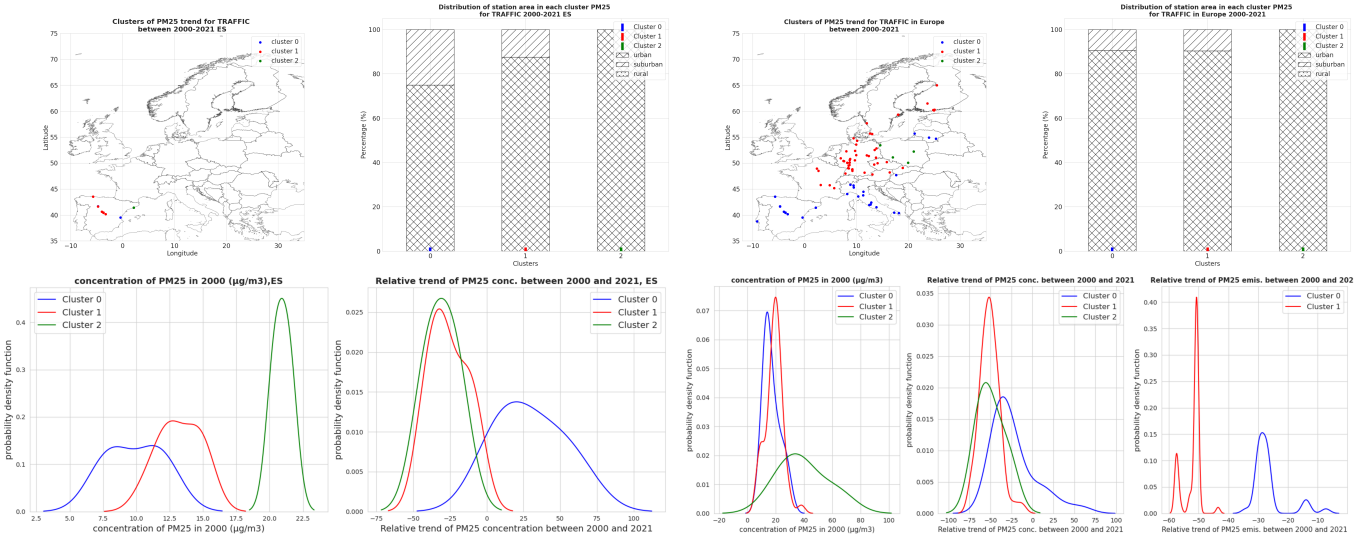

Figure A4.76: Clustering of the Spain (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

10 Finland

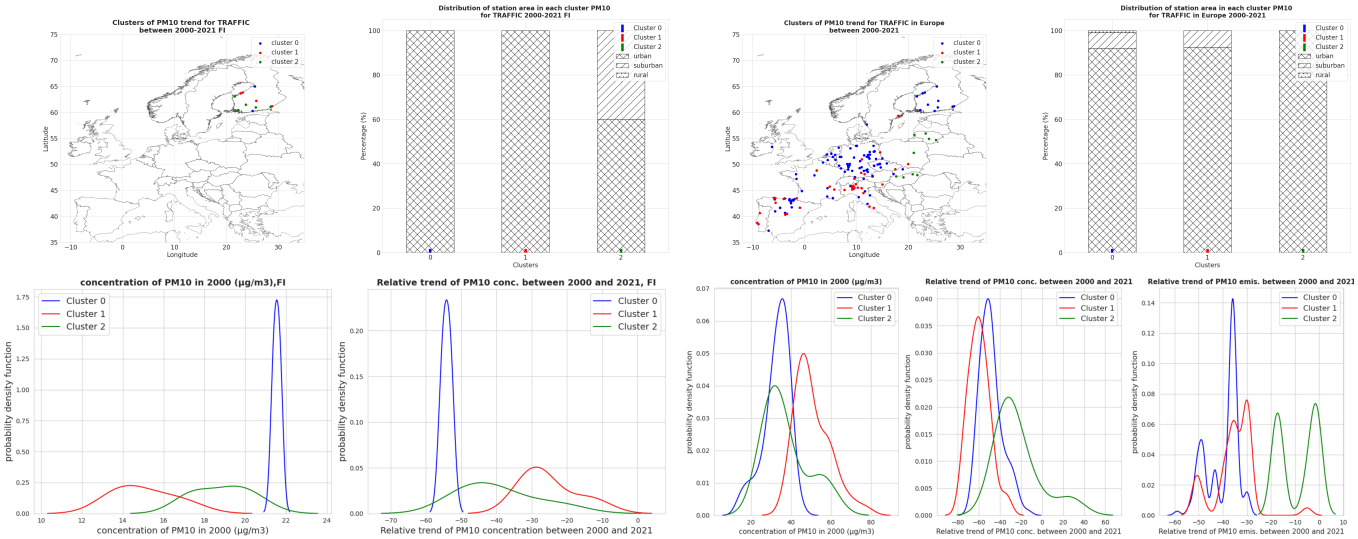

Figure A4.77: Clustering of the Finland (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

The minimum number of stations required to assess the country-wise clustering is not met.

11 France

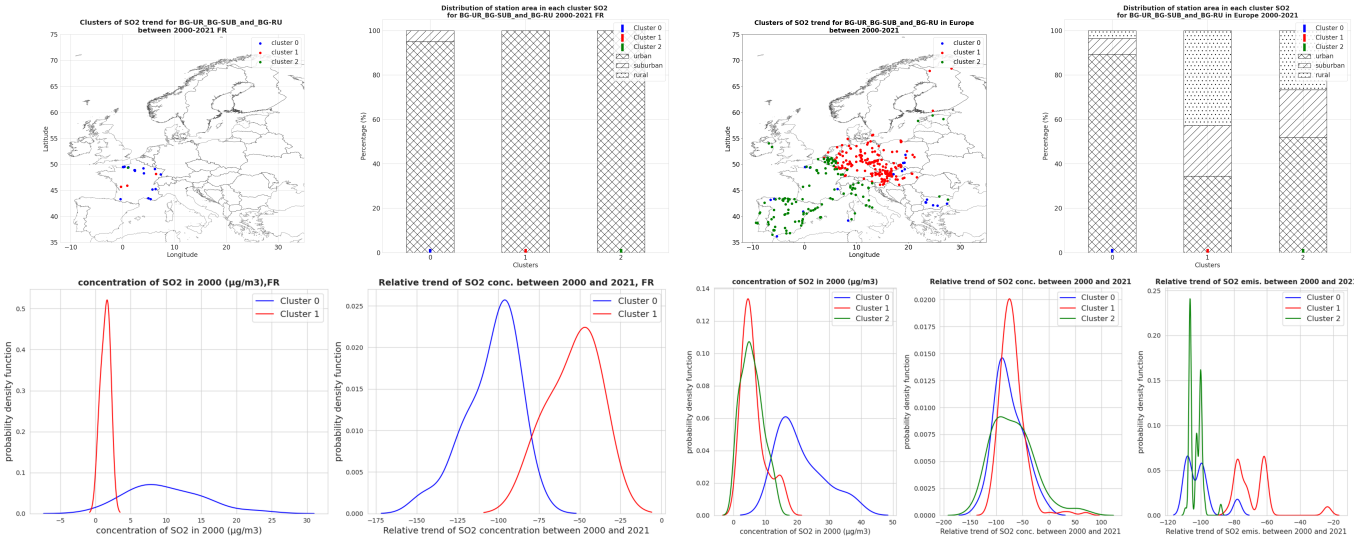

Figure A4.78: Clustering of the France (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

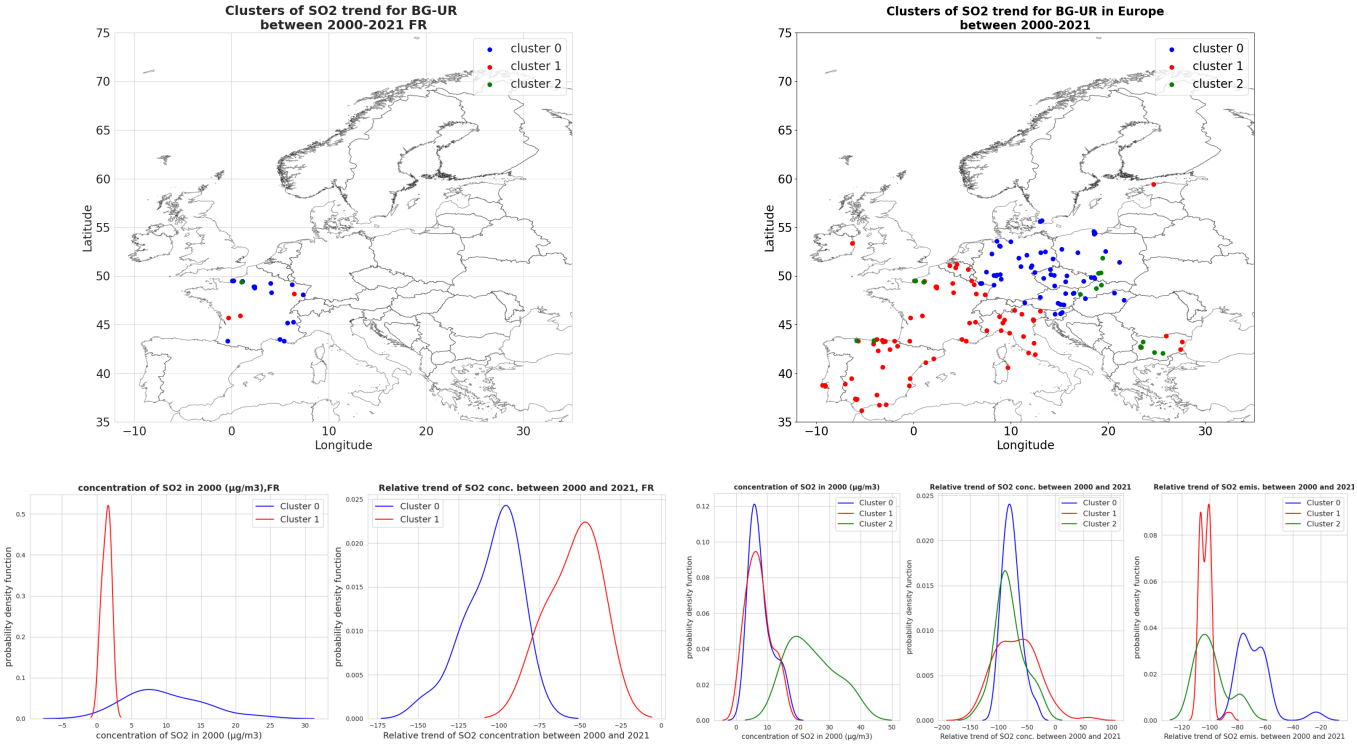

Figure A4.79: Clustering of the France (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

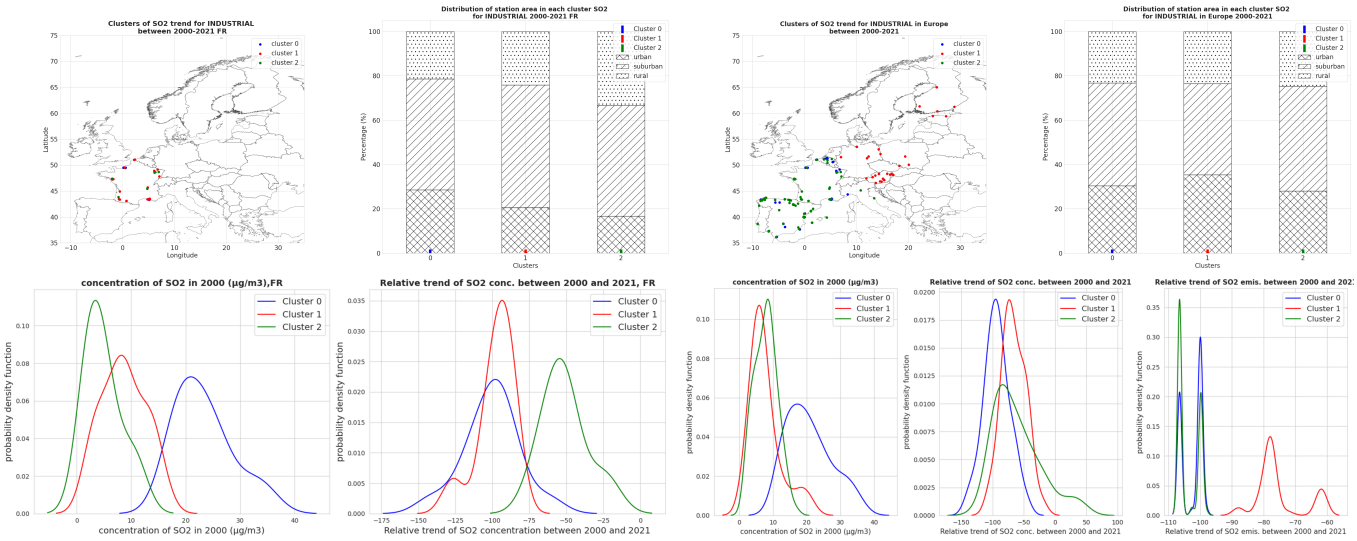

Figure A4.80: Clustering of the France (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

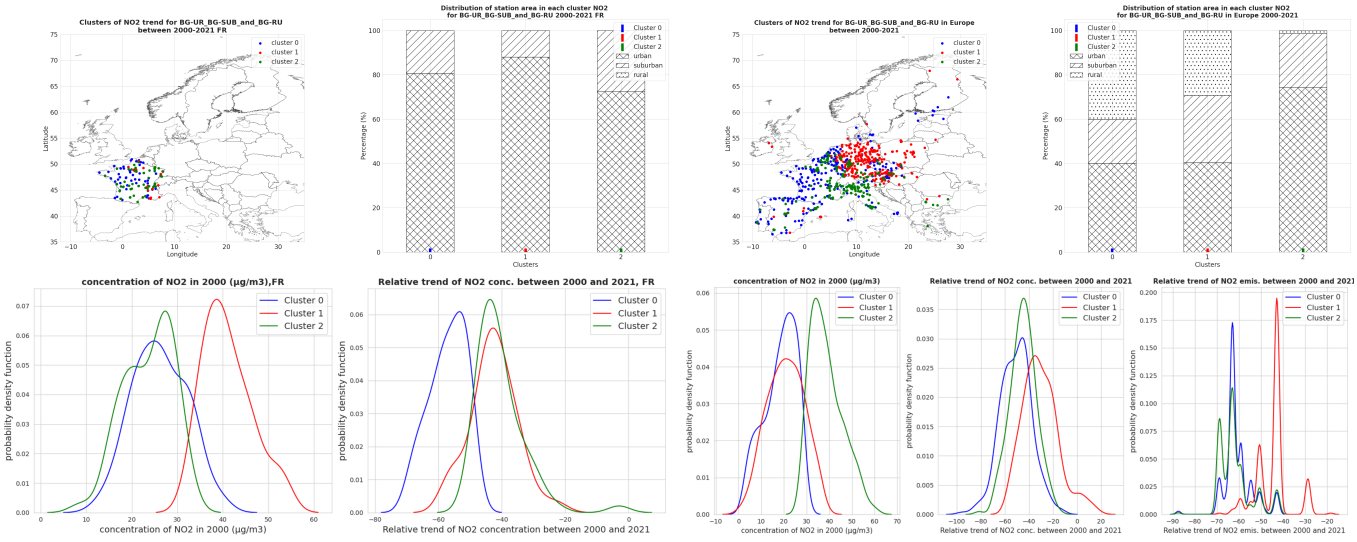

Figure A4.81: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

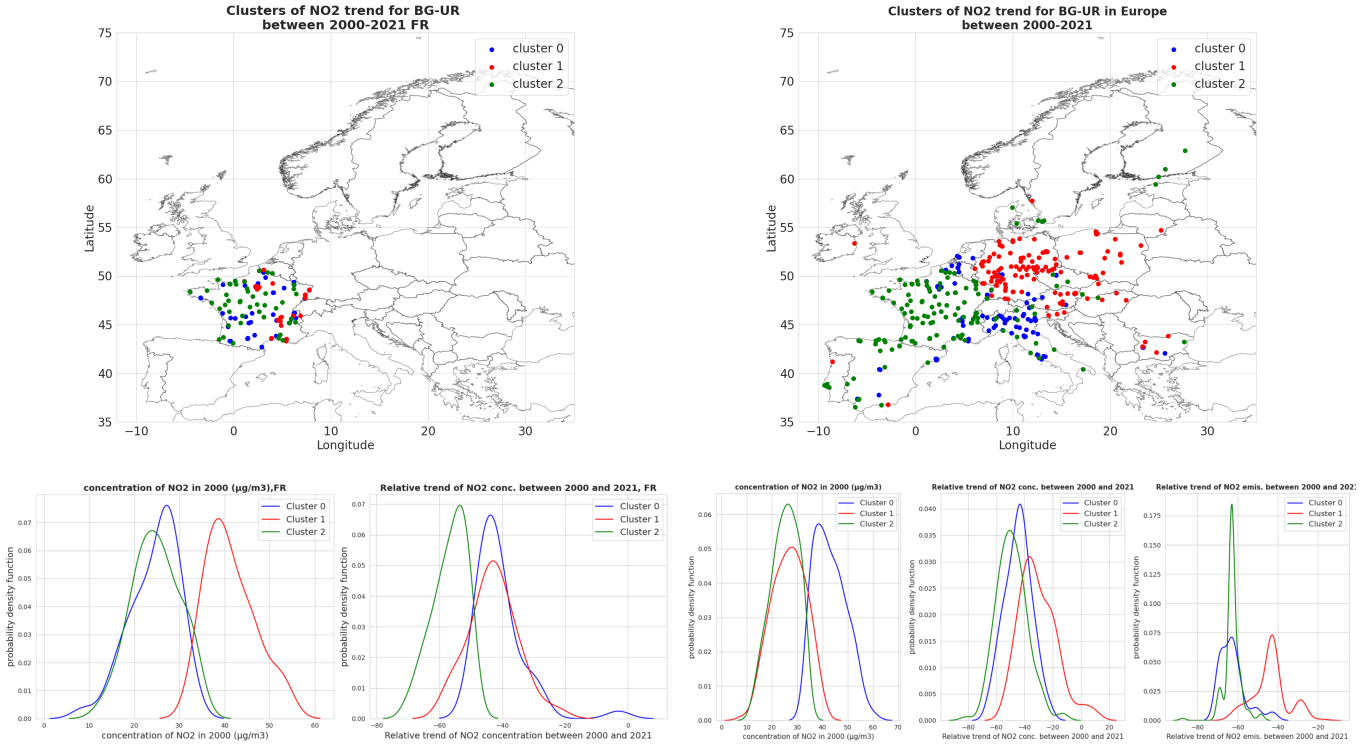

Figure A4.82: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

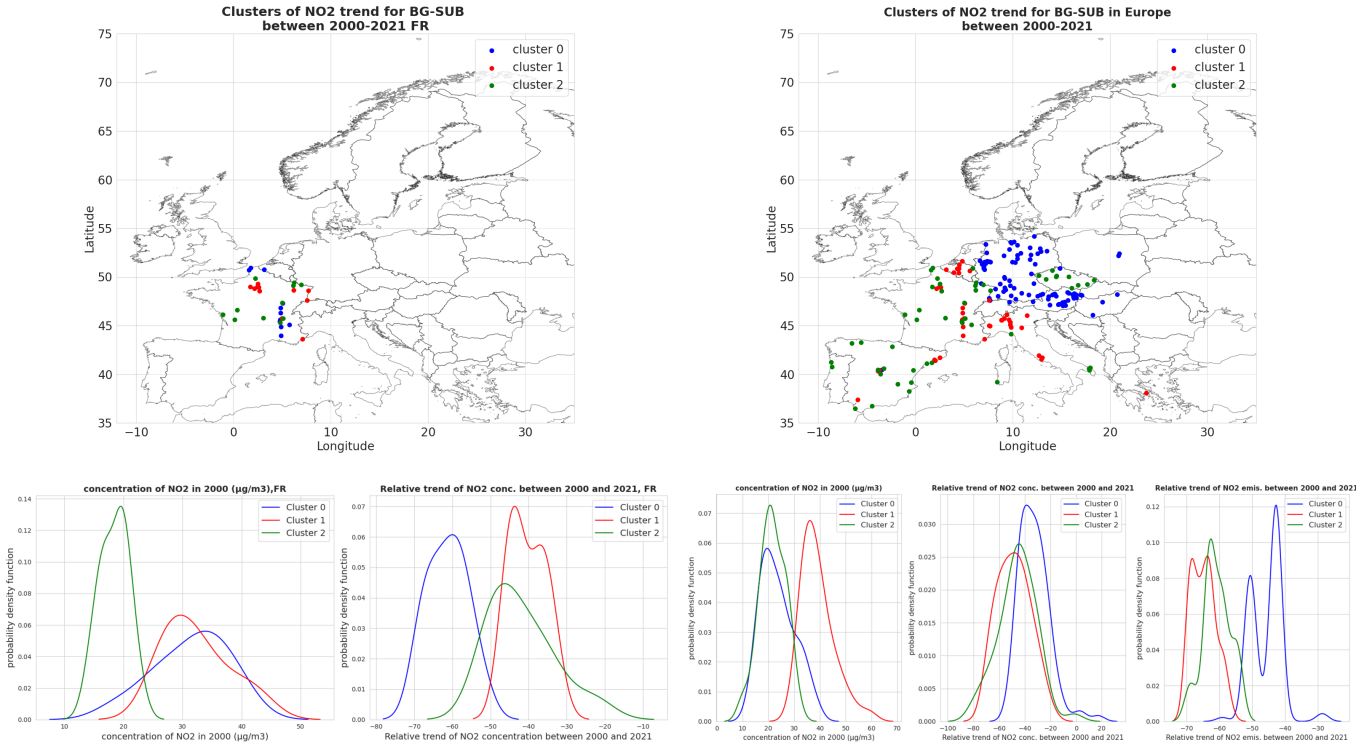

Figure A4.83: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

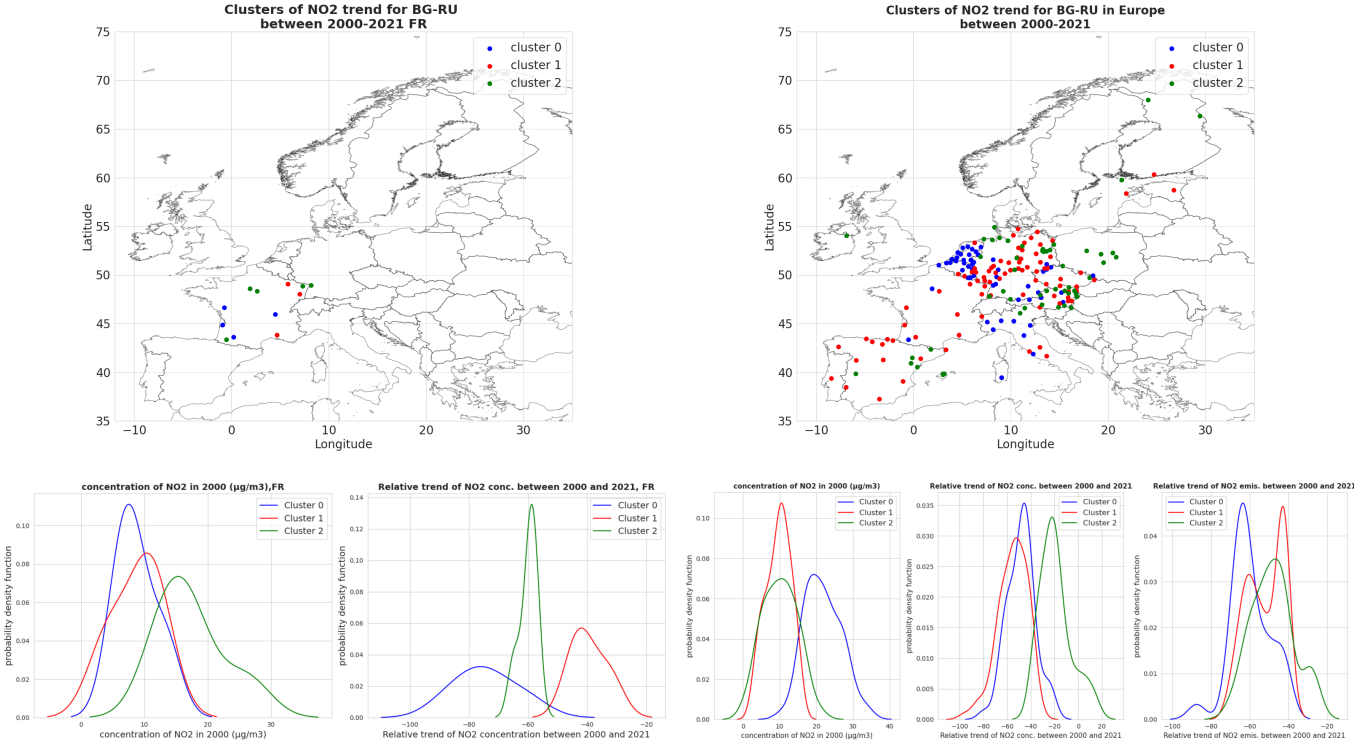

Figure A4.84: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

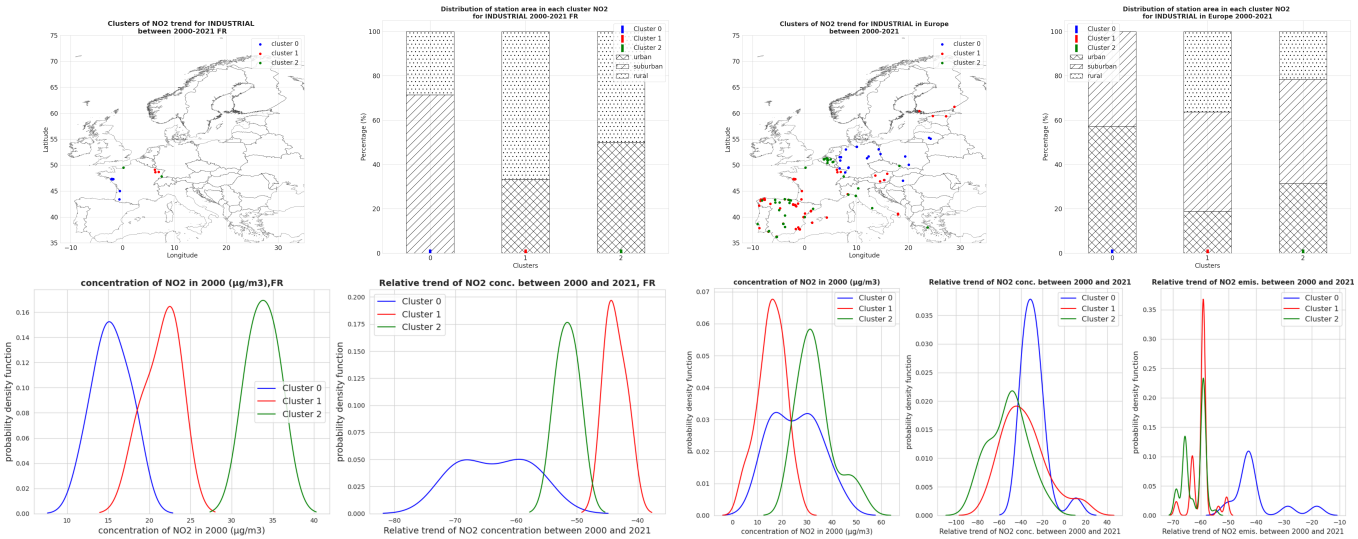

Figure A4.85: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

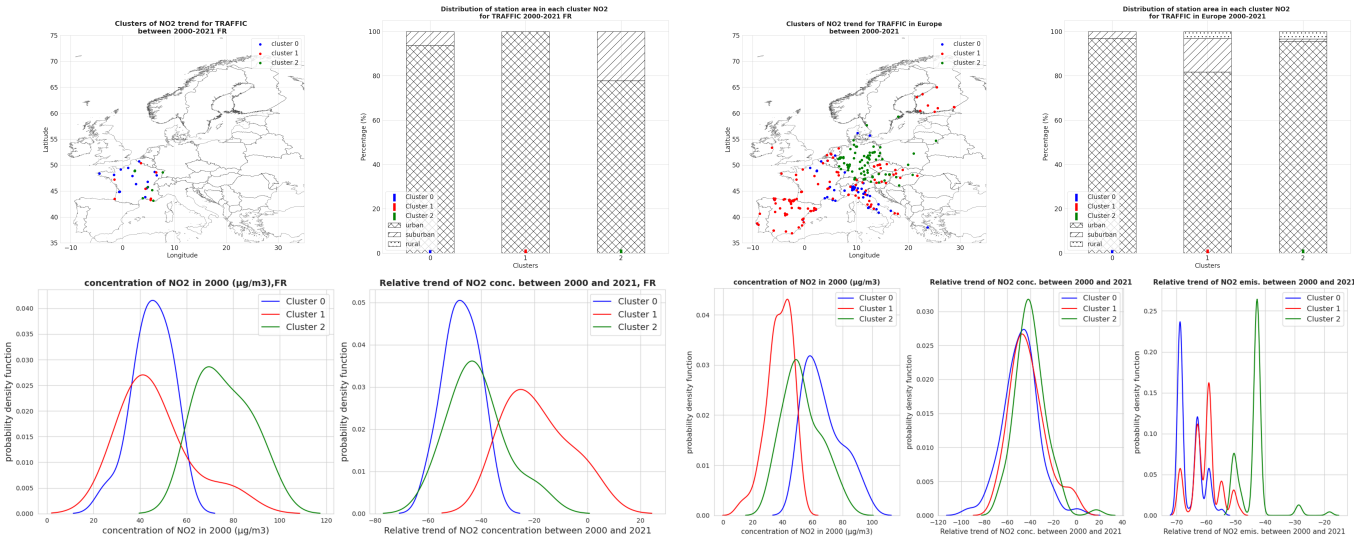

Figure A4.86: Clustering of the France (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

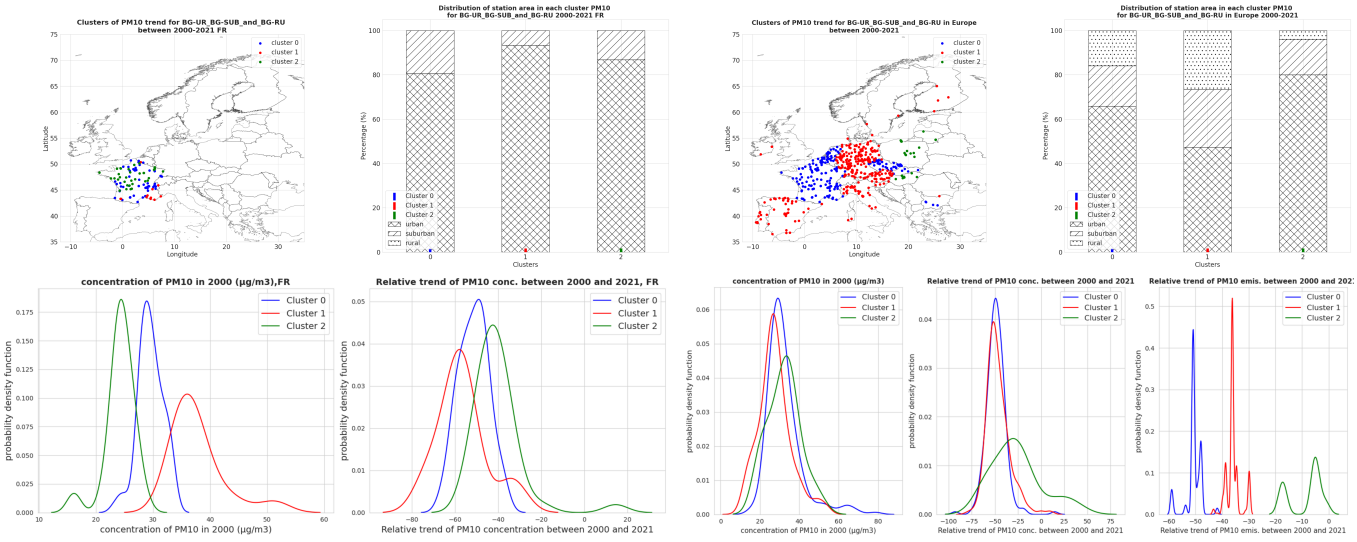

Figure A4.87: Clustering of the France (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

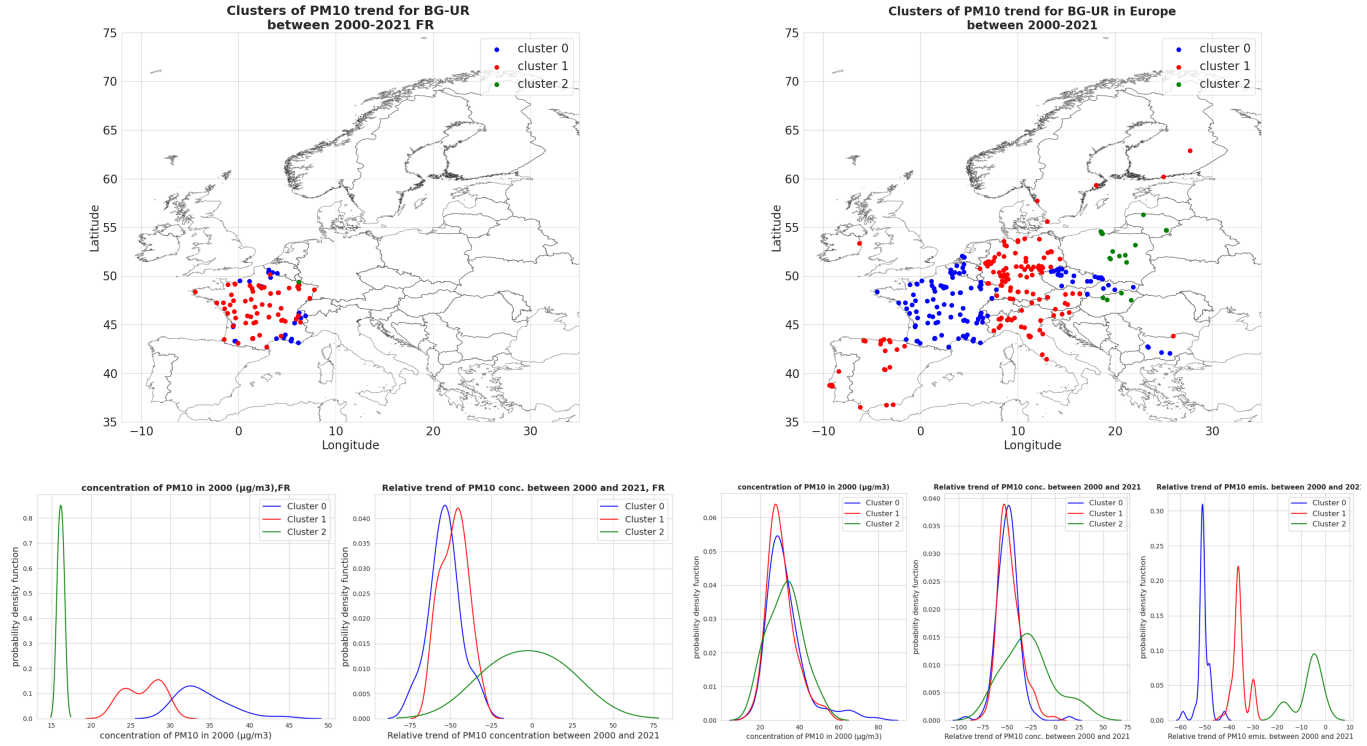

Figure A4.88: Clustering of the France (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

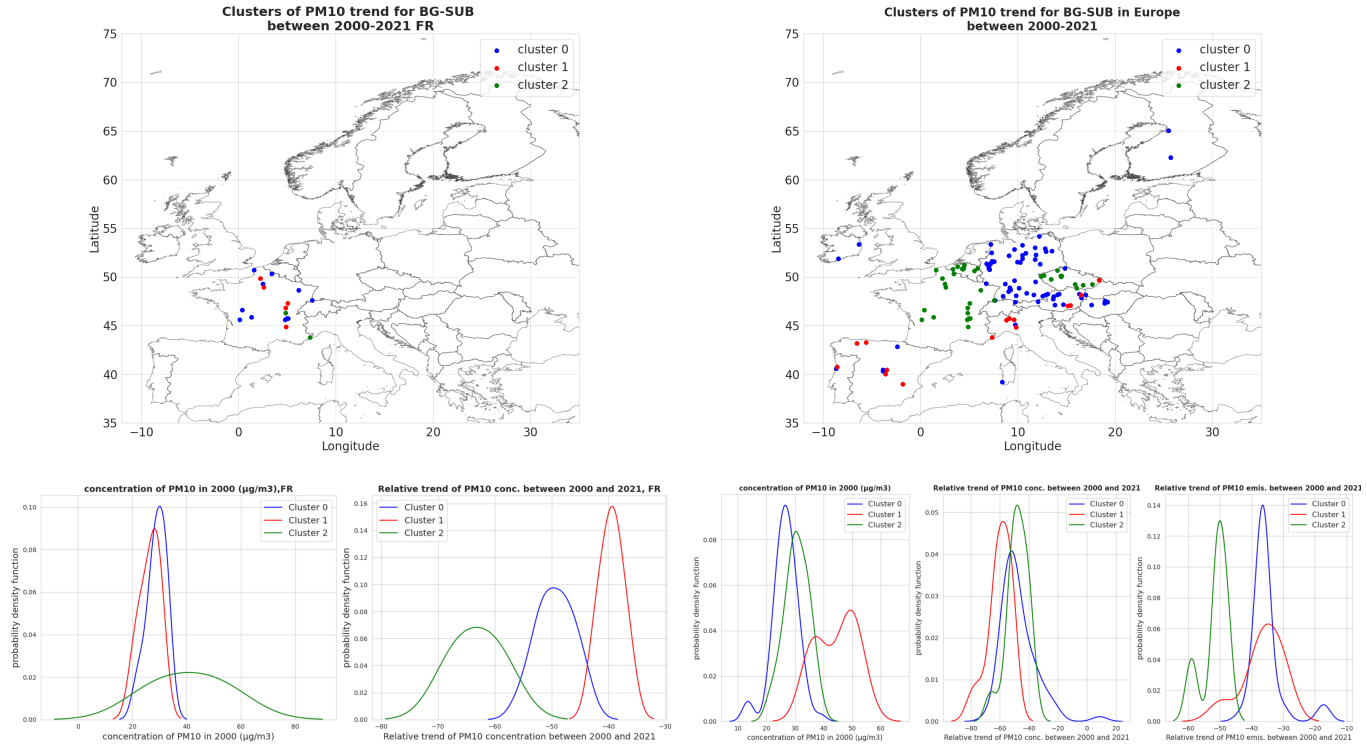

Figure A4.89: Clustering of the France (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

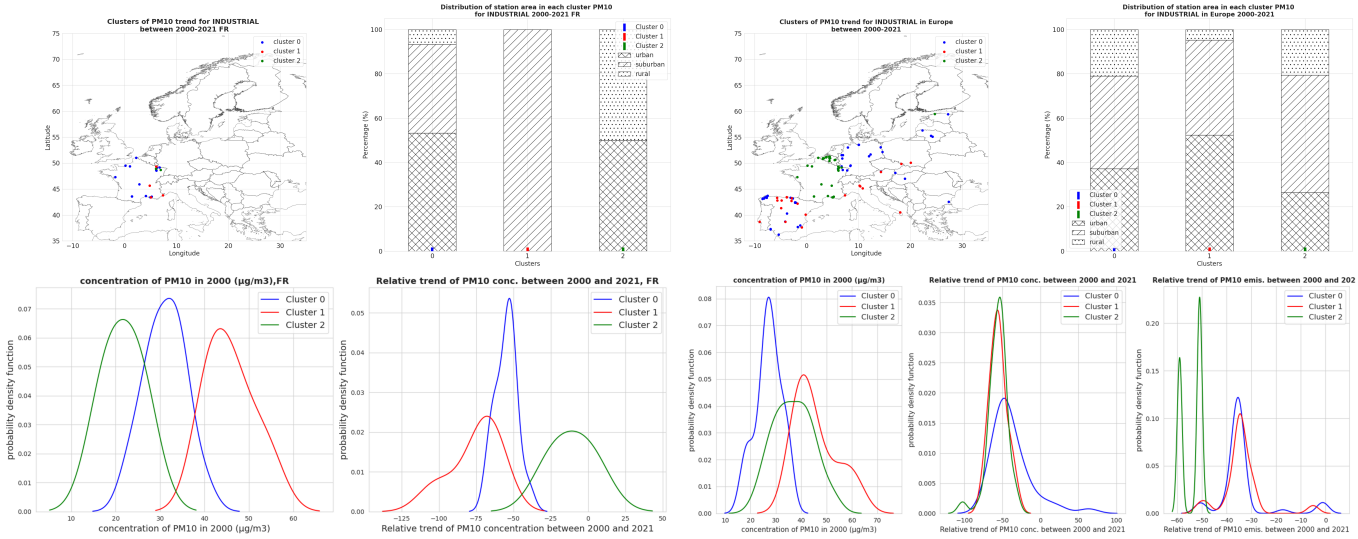

Figure A4.90: Clustering of the France (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of INDUSTRIAL typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

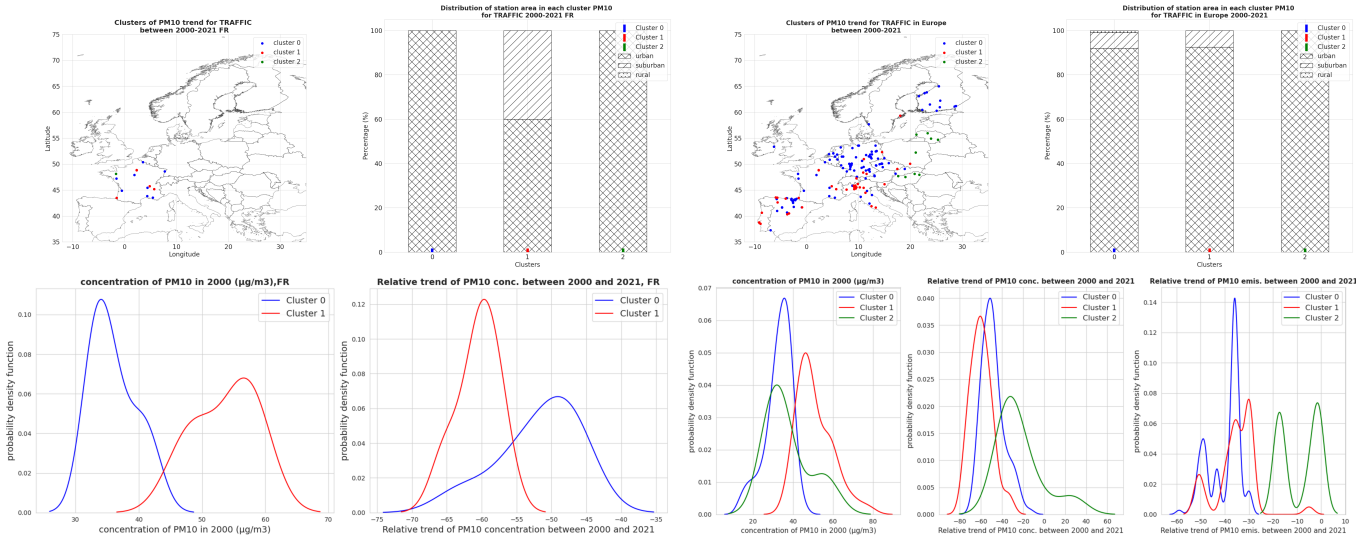

Figure A4.91: Clustering of the France (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

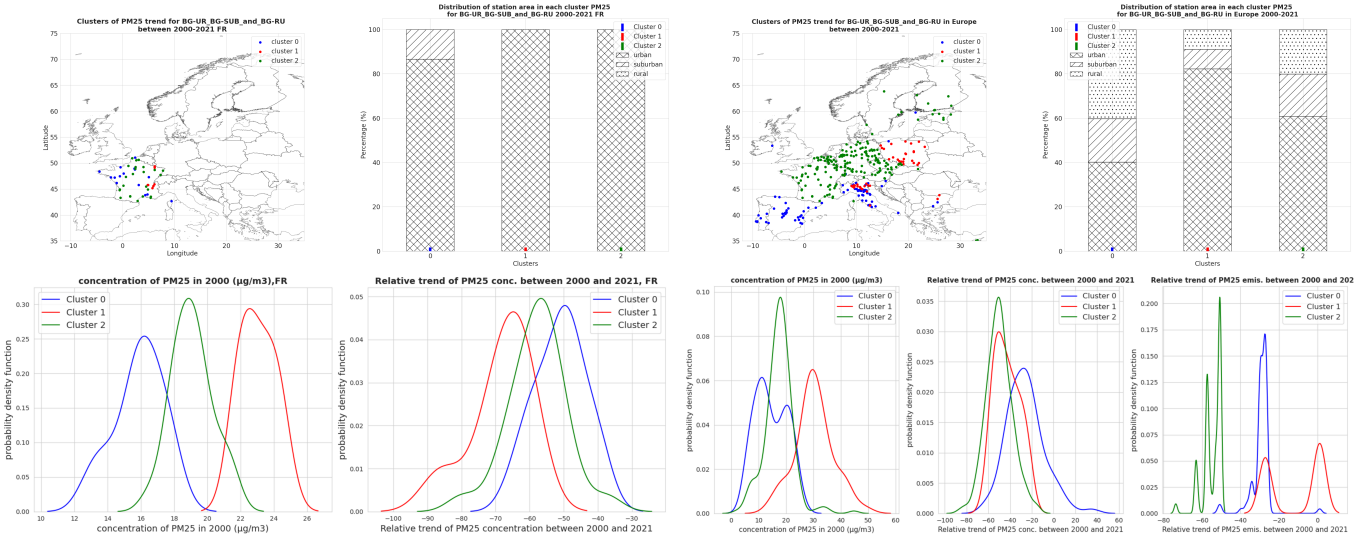

Figure A4.92: Clustering of the France (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

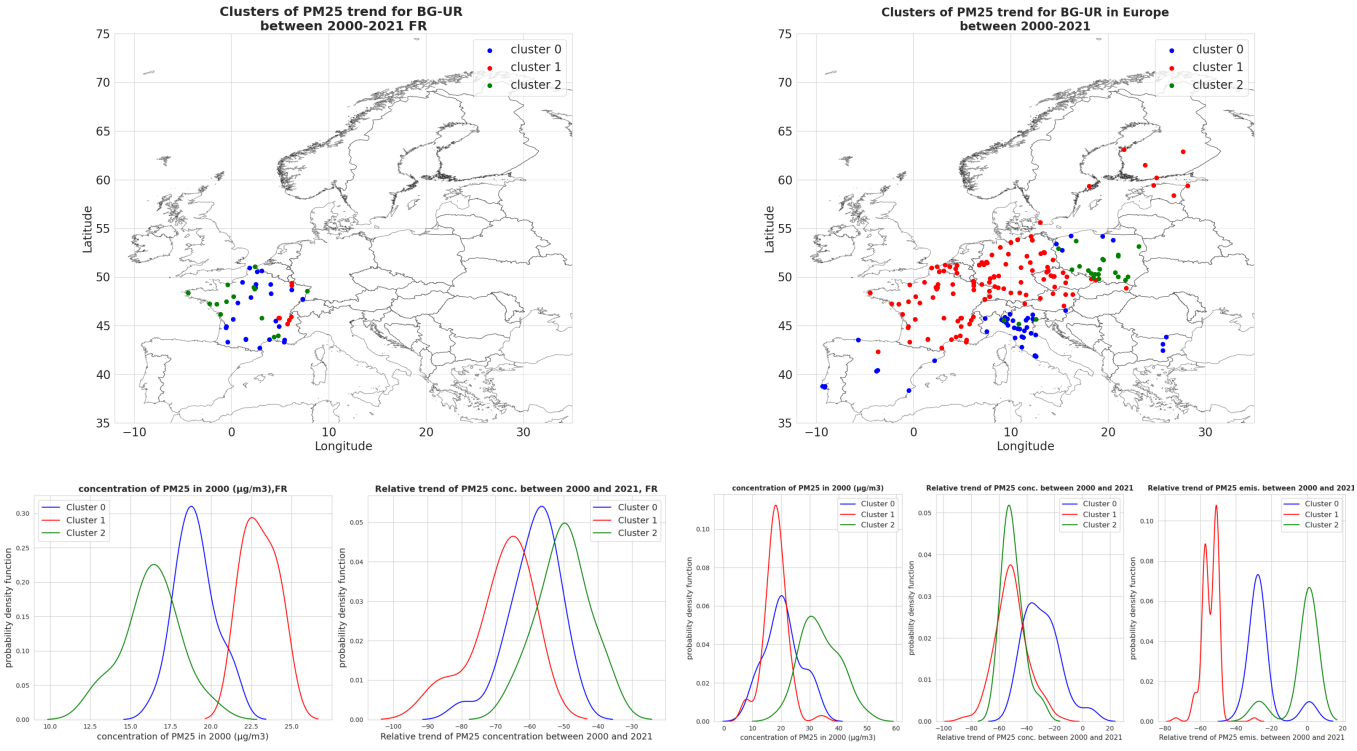

Figure A4.93: Clustering of the France (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

12 Greece

The minimum number of stations required to assess the country-wise clustering is not met.

13 Croatia

The minimum number of stations required to assess the country-wise clustering is not met.

14 Hungary

The minimum number of stations required to assess the country-wise clustering is not met.

15 Ireland

The minimum number of stations required to assess the country-wise clustering is not met.

16 Italy

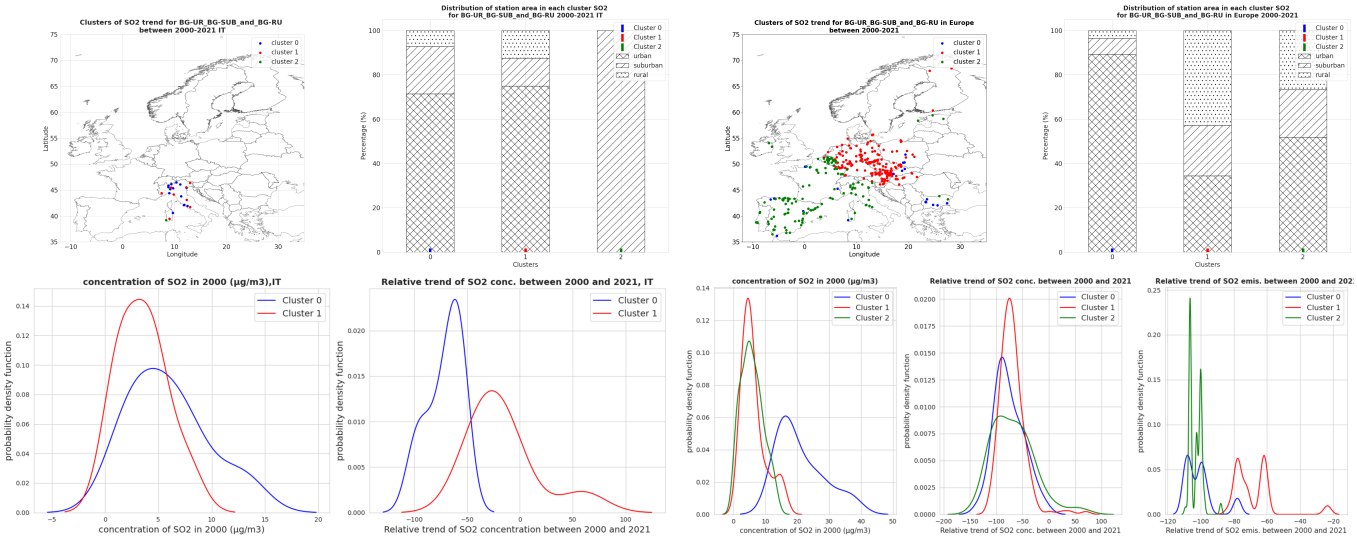

Figure A4.94: Clustering of the Italy (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

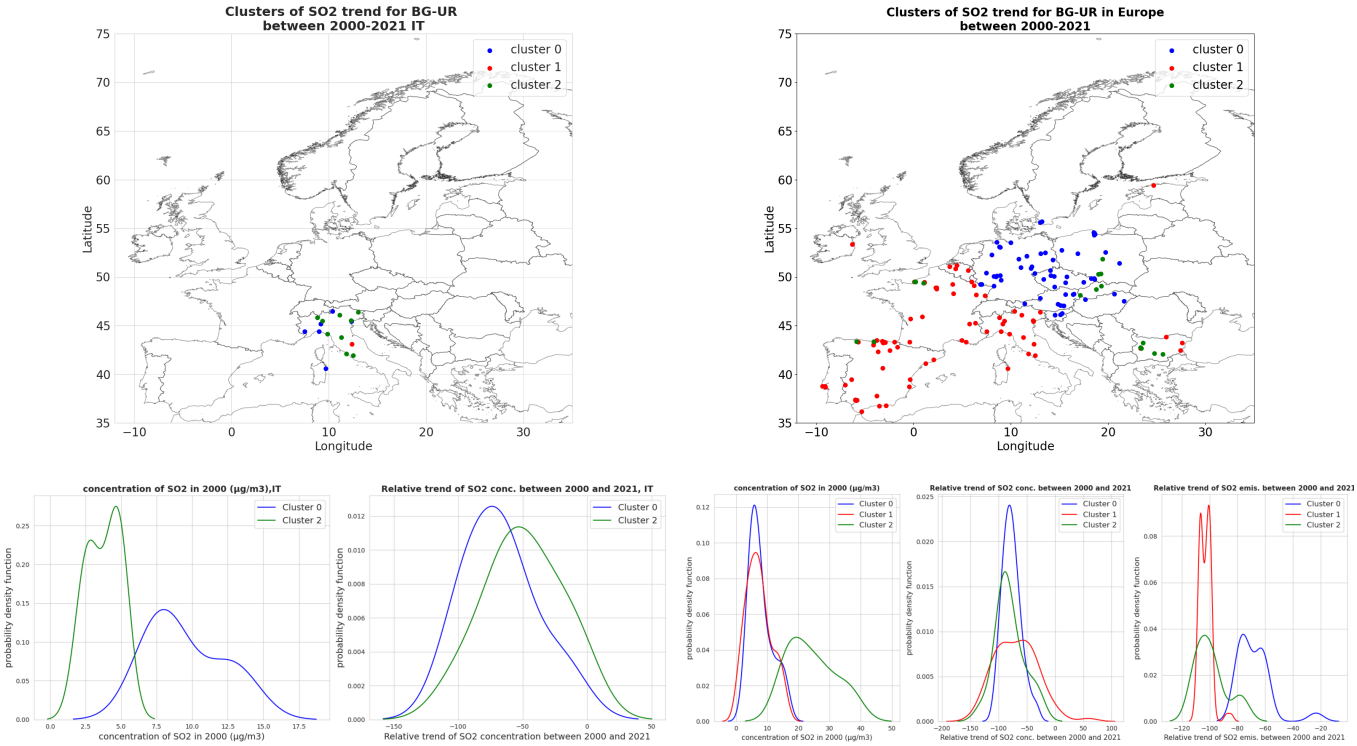

Figure A4.95: Clustering of the Italy (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

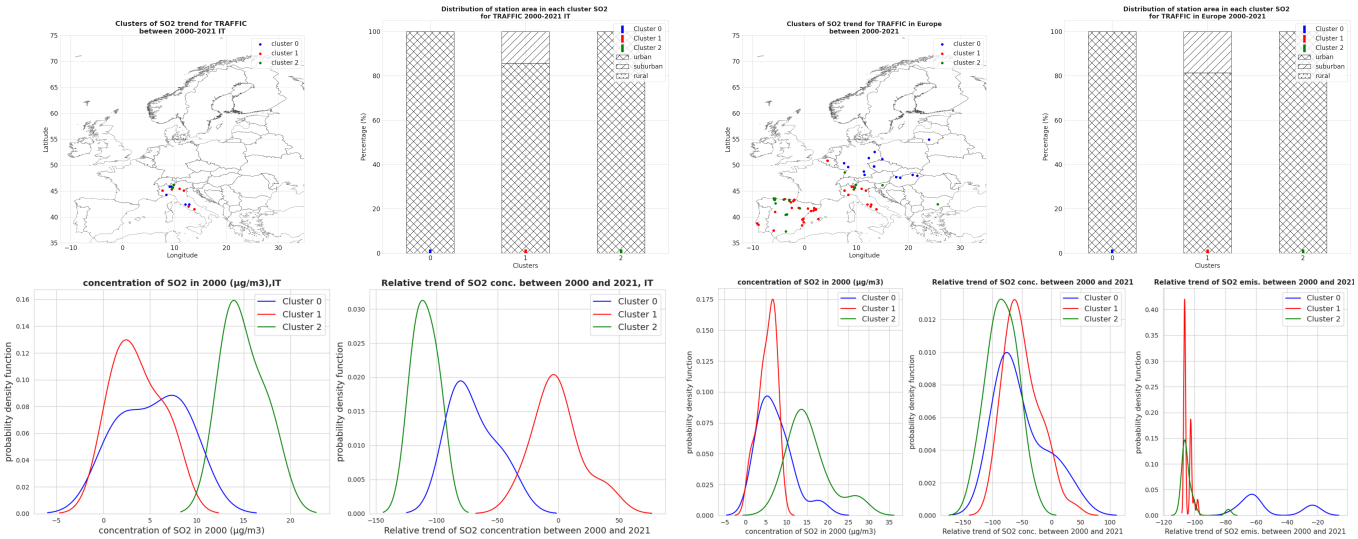

Figure A4.96: Clustering of the Italy (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

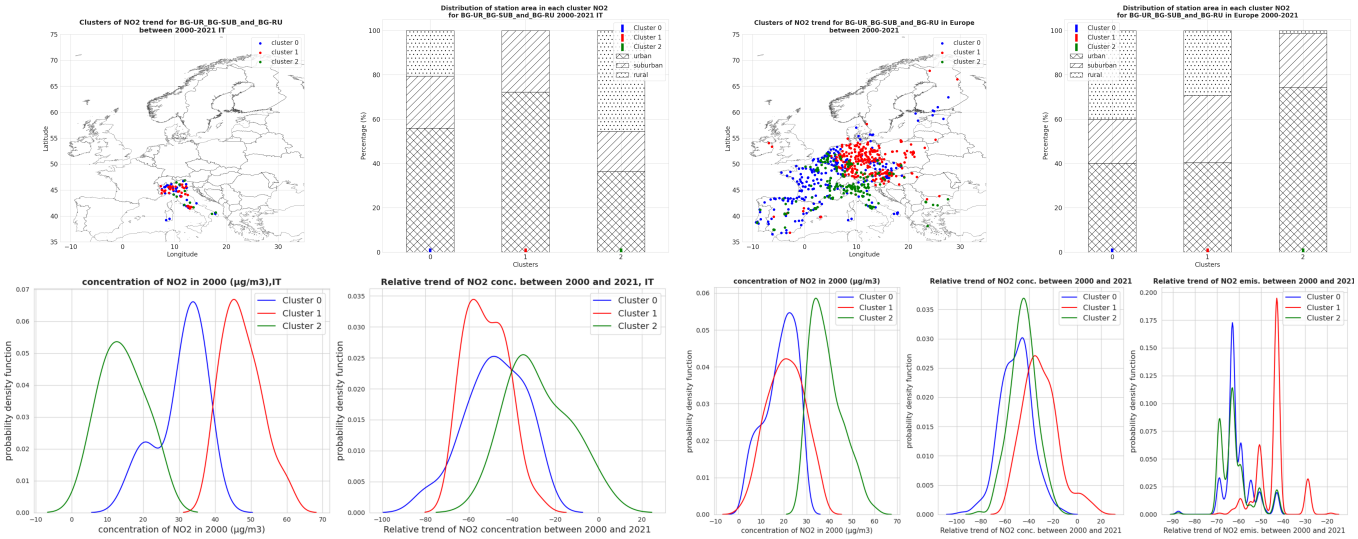

Figure A4.97: Clustering of the Italy (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

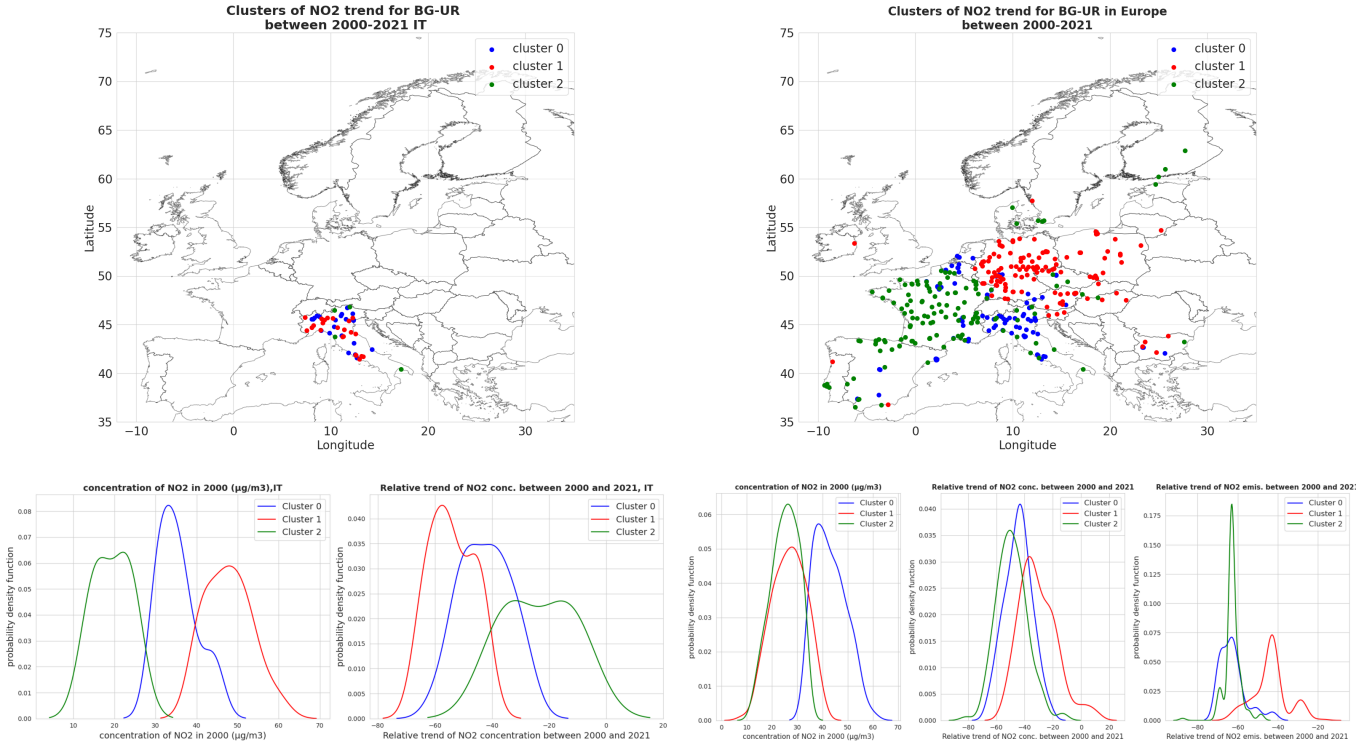

Figure A4.98: Clustering of the Italy (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

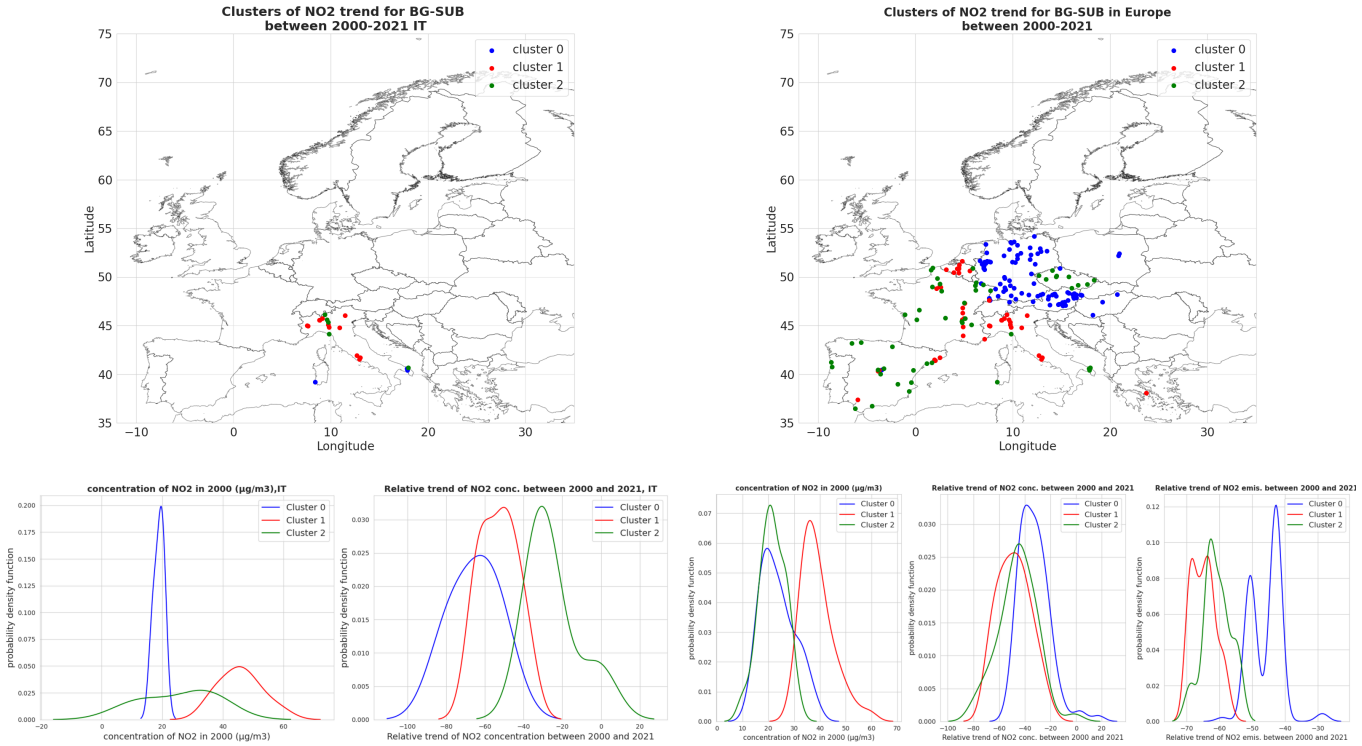

Figure A4.99: Clustering of the Italy (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-SUB typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

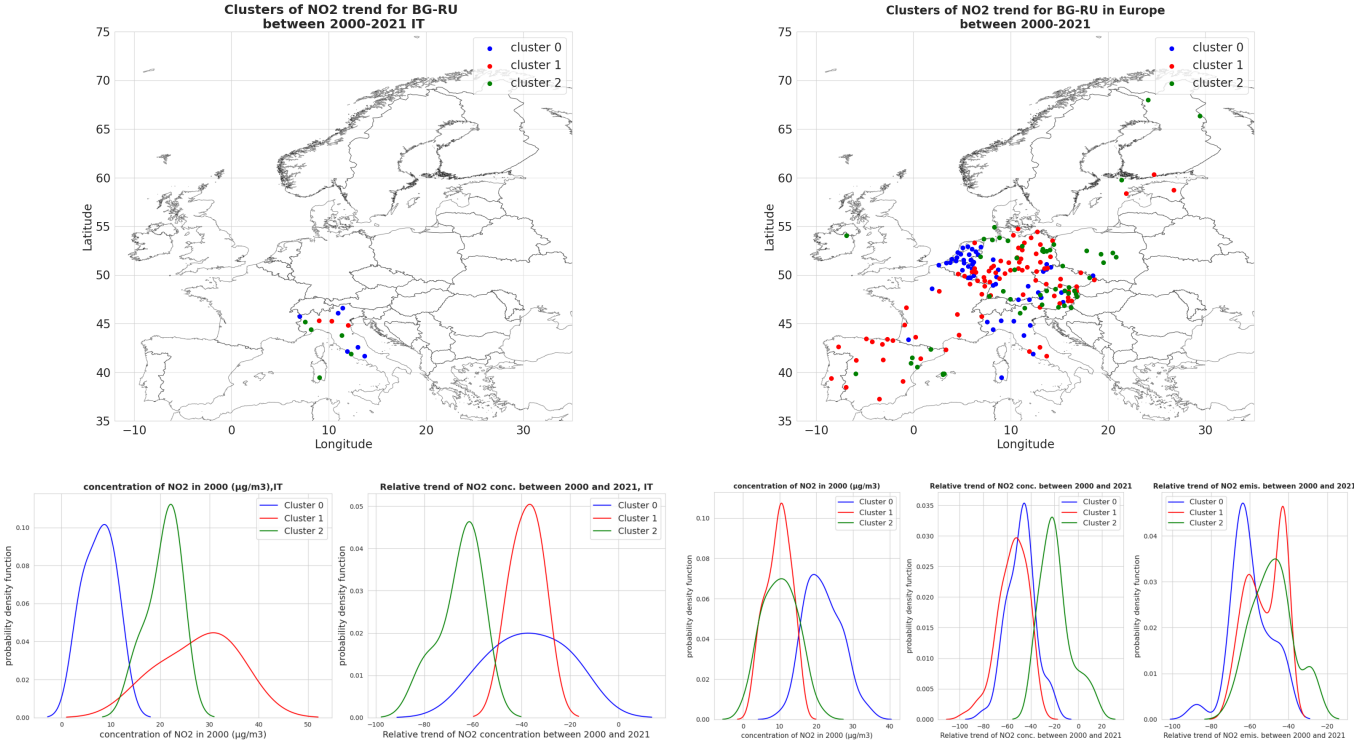

Figure A4.100: Clustering of the Italy (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

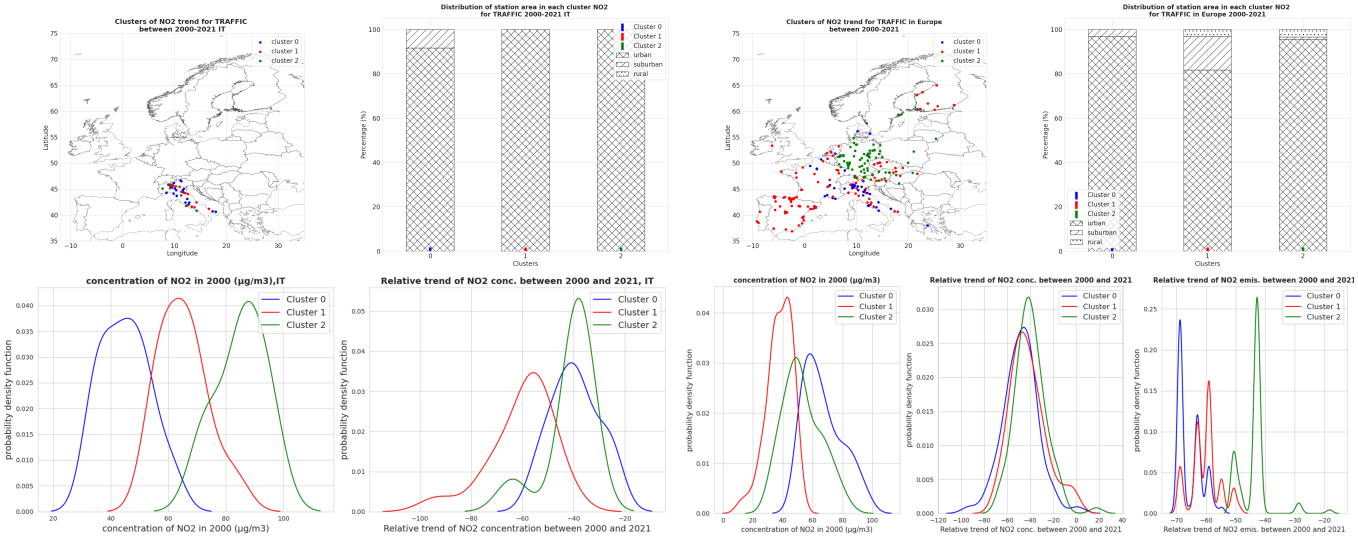

Figure A4.101: Clustering of the Italy (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

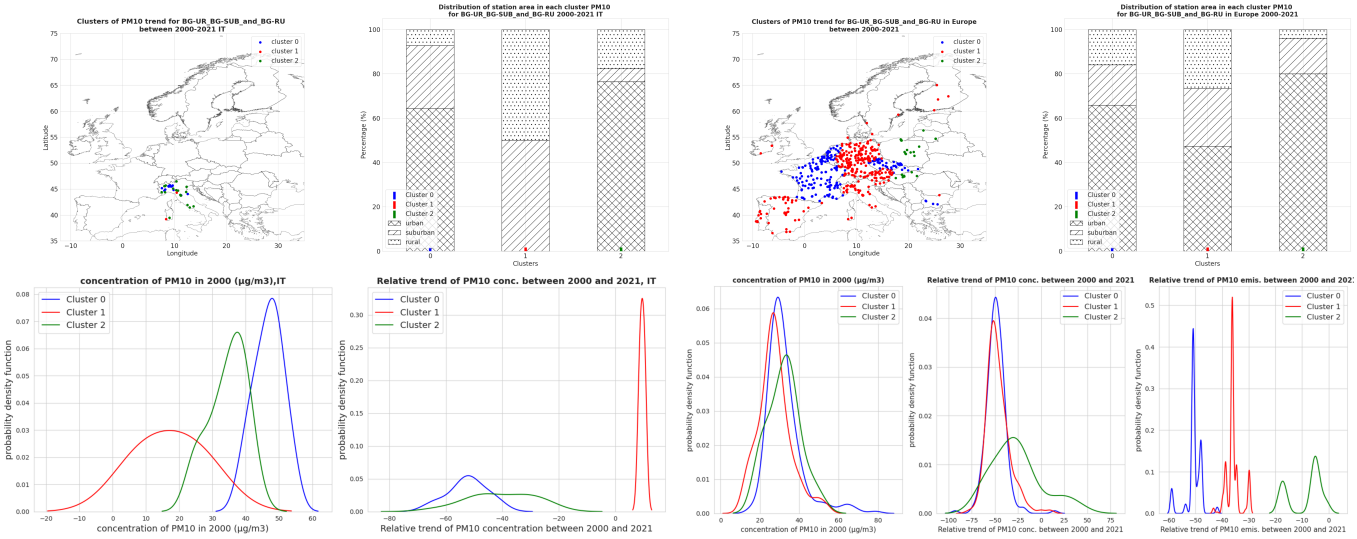

Figure A4.102: Clustering of the Italy (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

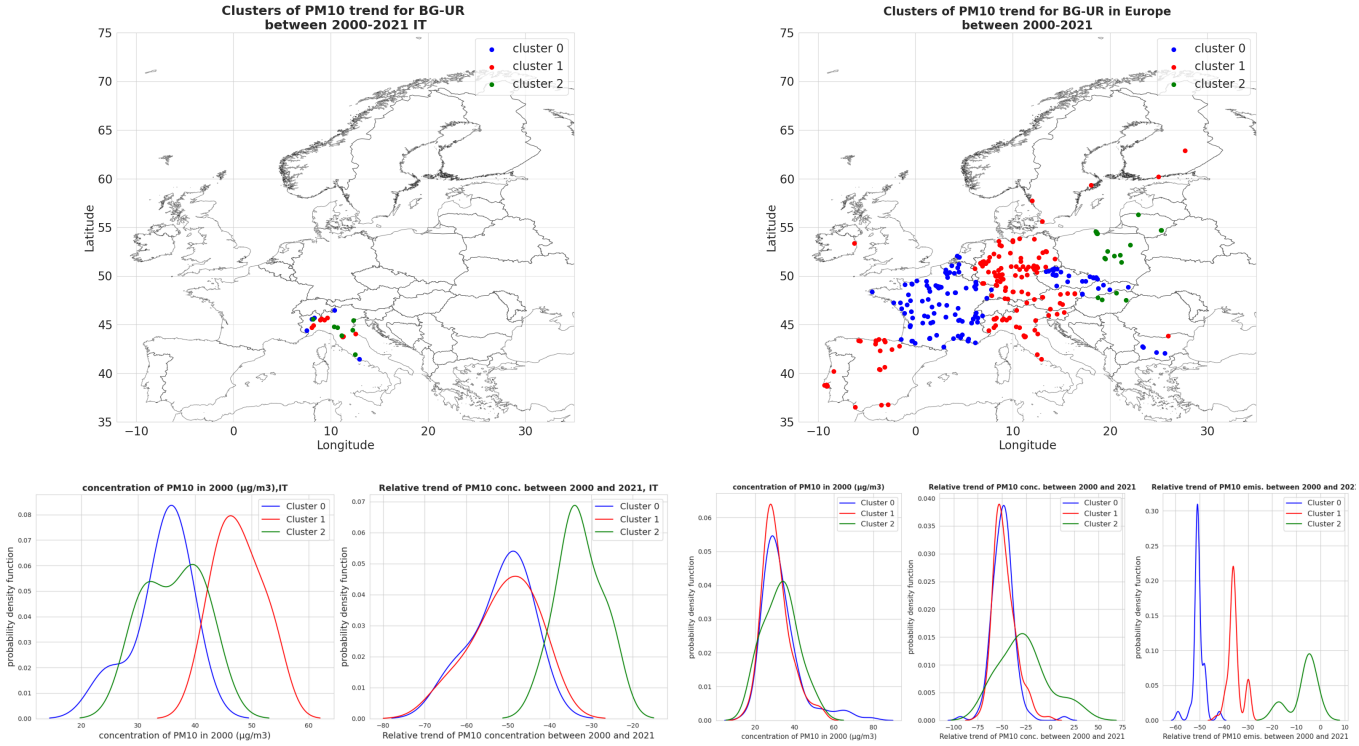

Figure A4.103: Clustering of the Italy (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

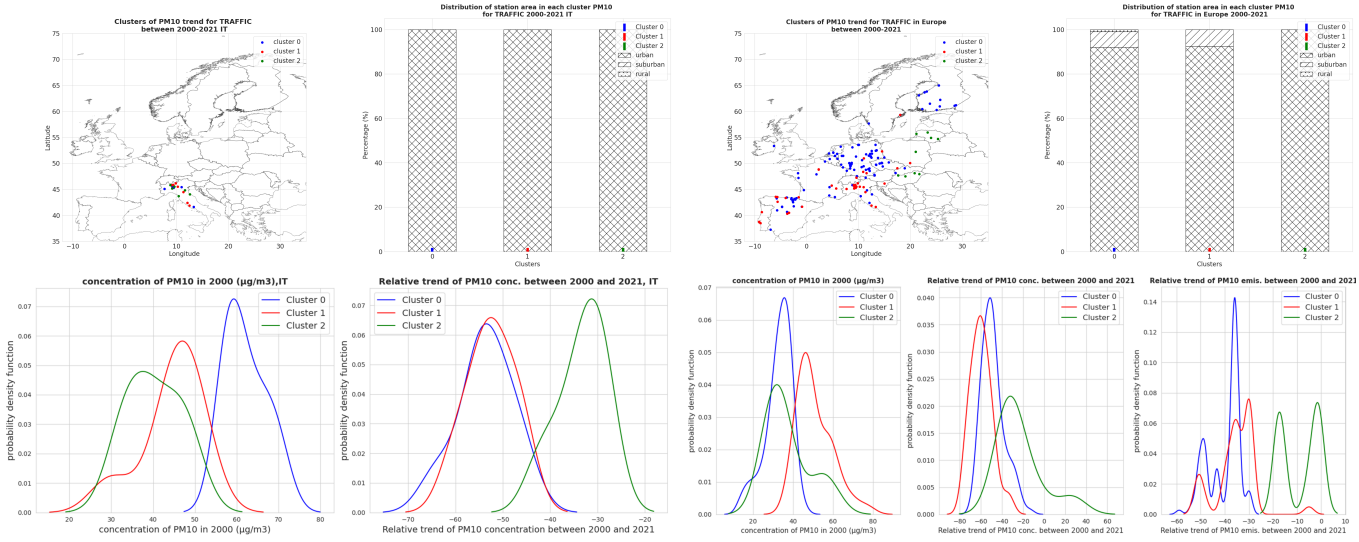

Figure A4.104: Clustering of the Italy (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

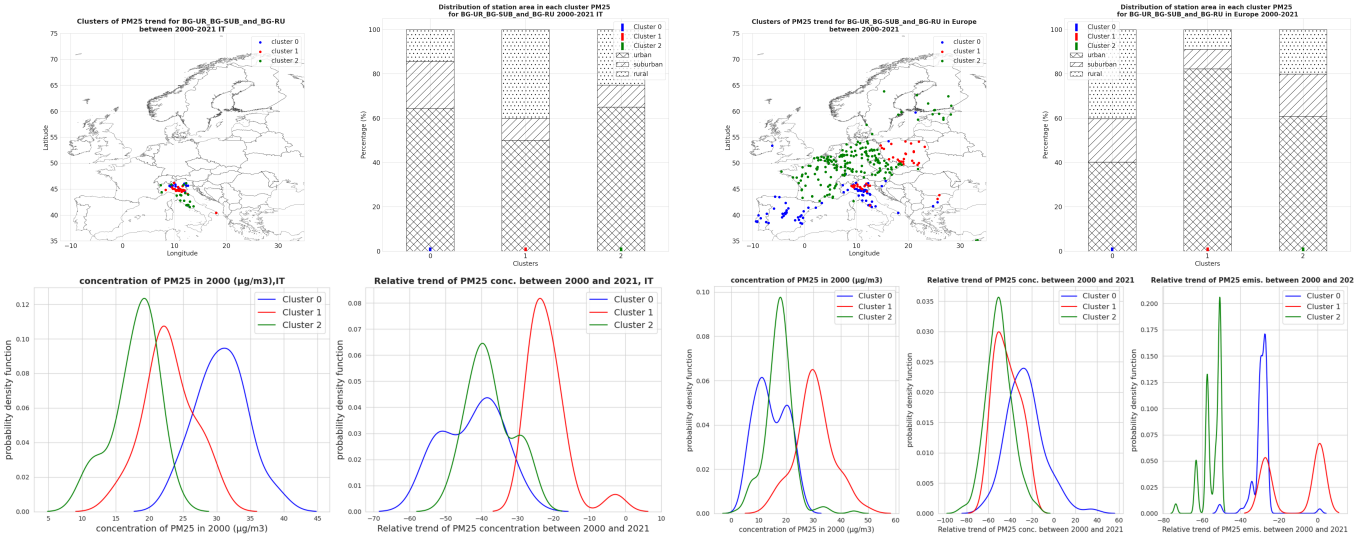

Figure A4.105: Clustering of the Italy (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

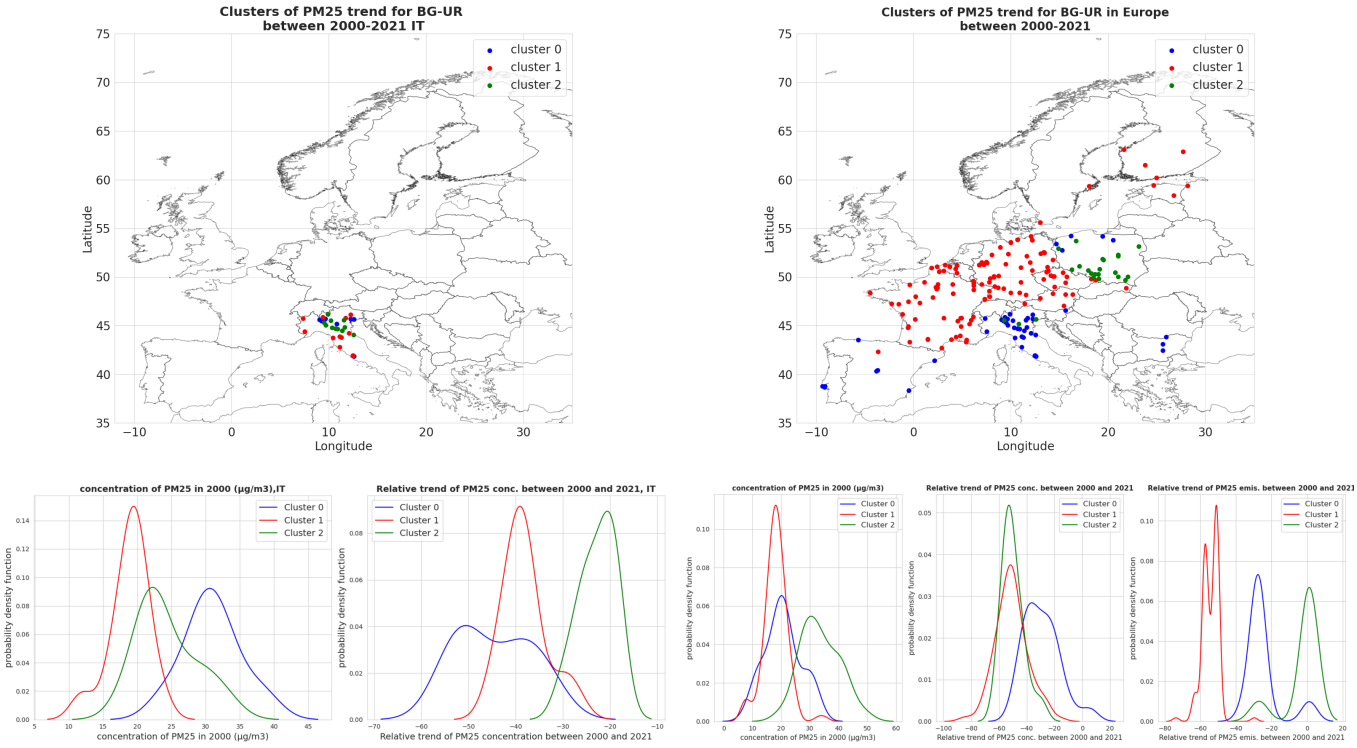

Figure A4.106: Clustering of the Italy (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

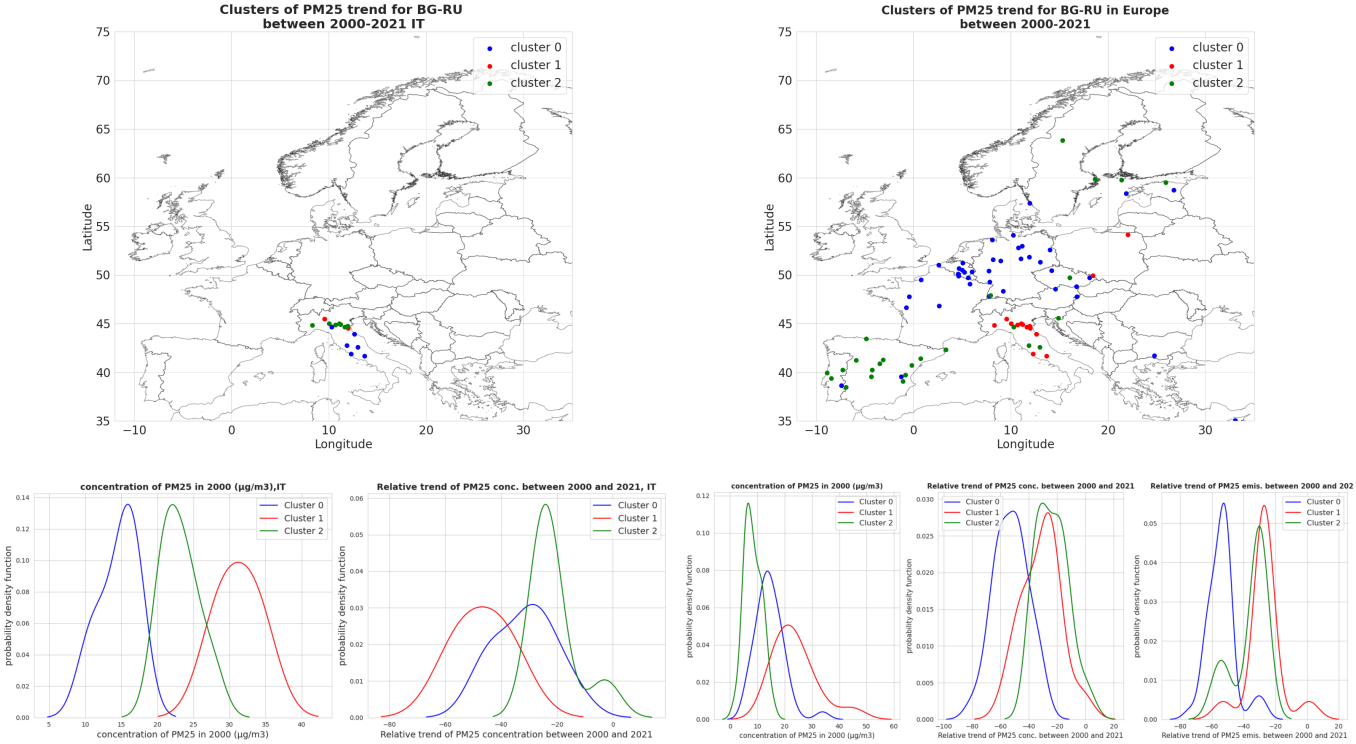

Figure A4.107: Clustering of the Italy (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

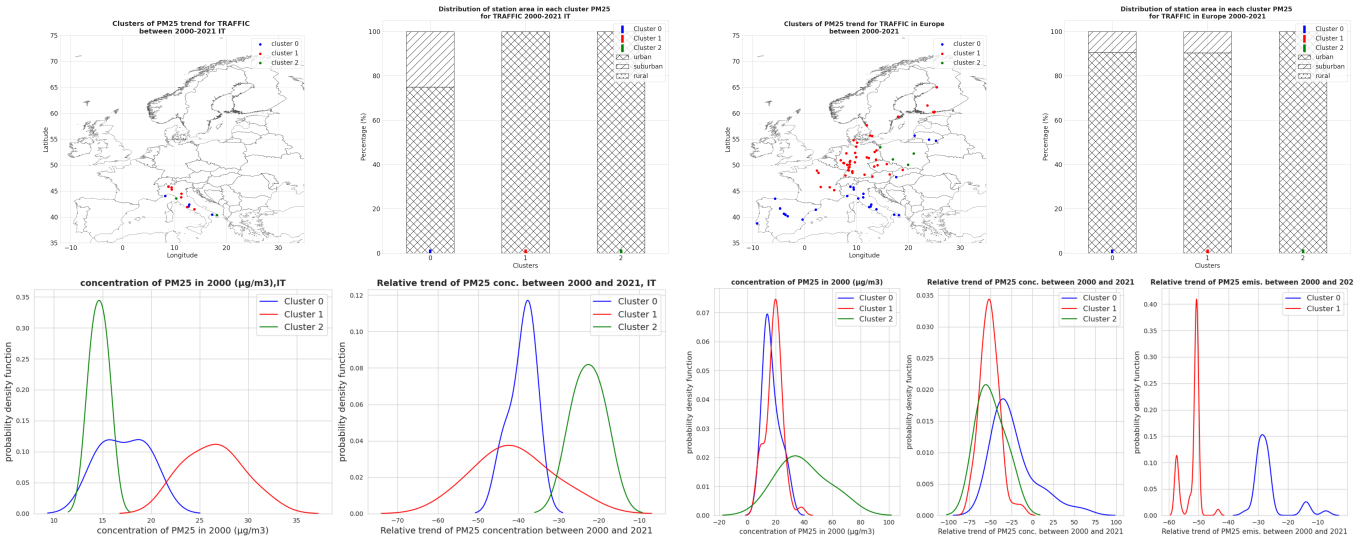

Figure A4.108: Clustering of the Italy (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of TRAFFIC typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

17 Lithuania

The minimum number of stations required to assess the country-wise clustering is not met.

18 Luxembourg

The minimum number of stations required to assess the country-wise clustering is not met.

19 Republic of North Macedonia

The minimum number of stations required to assess the country-wise clustering is not met.

20 Netherlands

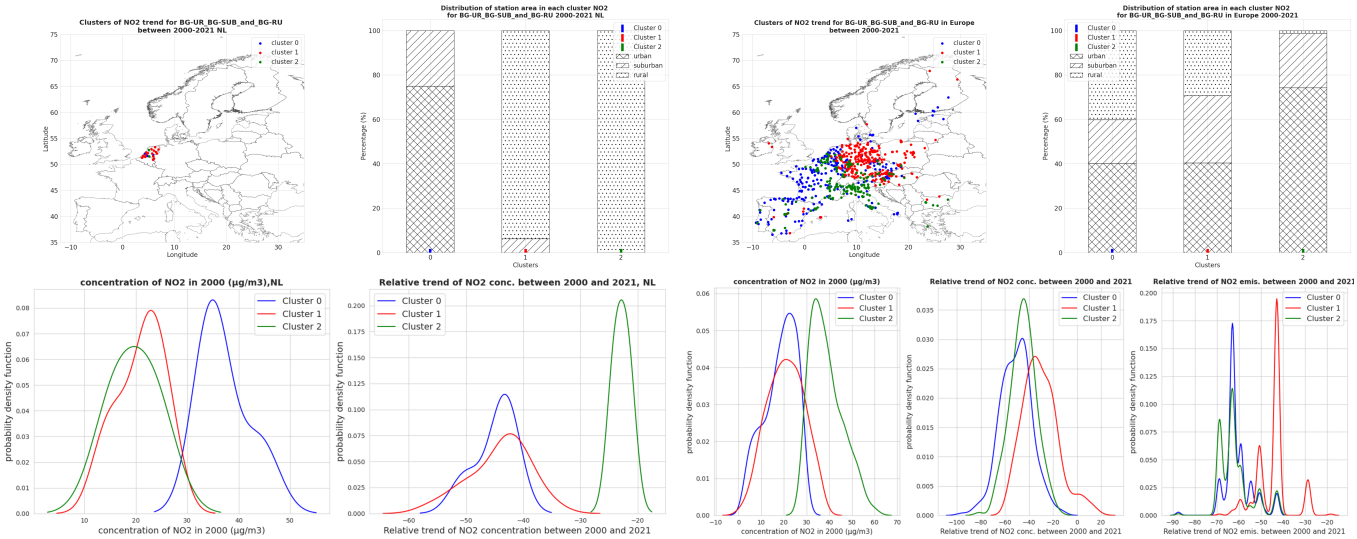

Figure A4.109: Clustering of the Netherlands (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

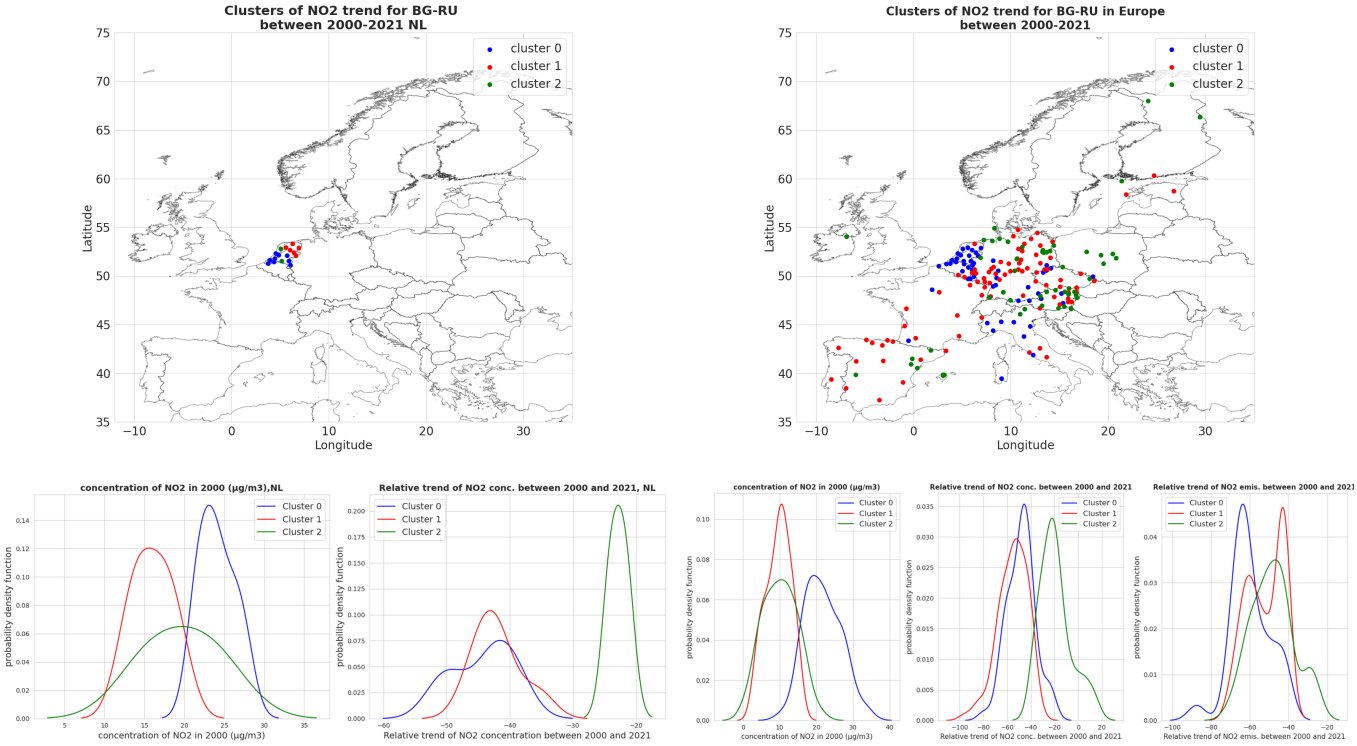

Figure A4.110: Clustering of the Netherlands (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

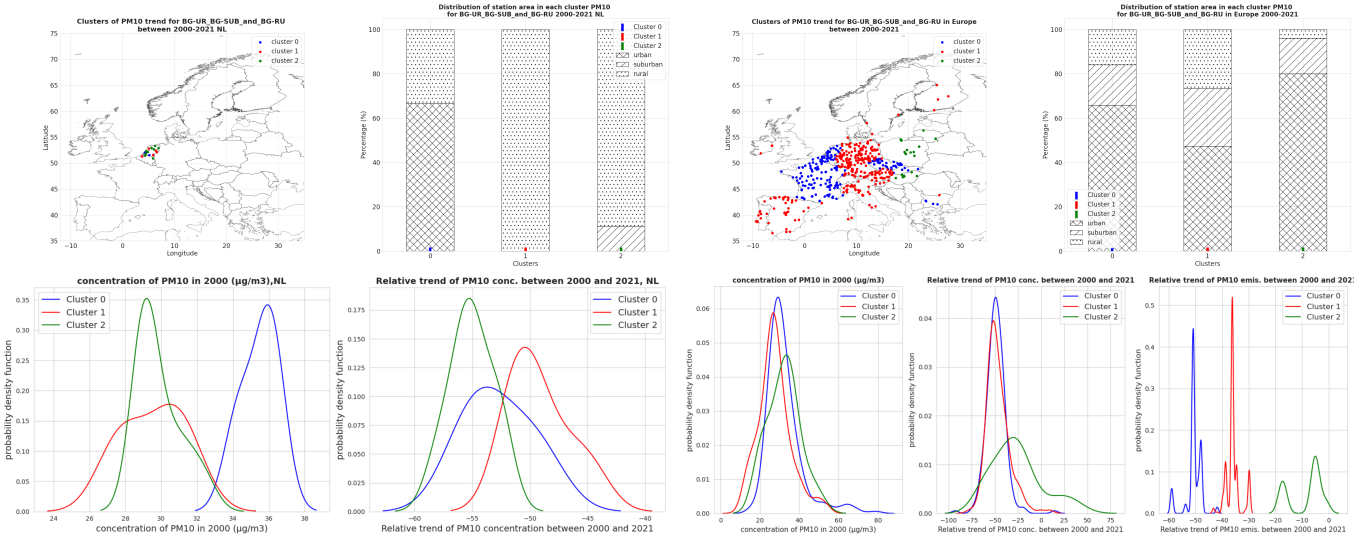

Figure A4.111: Clustering of the Netherlands (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

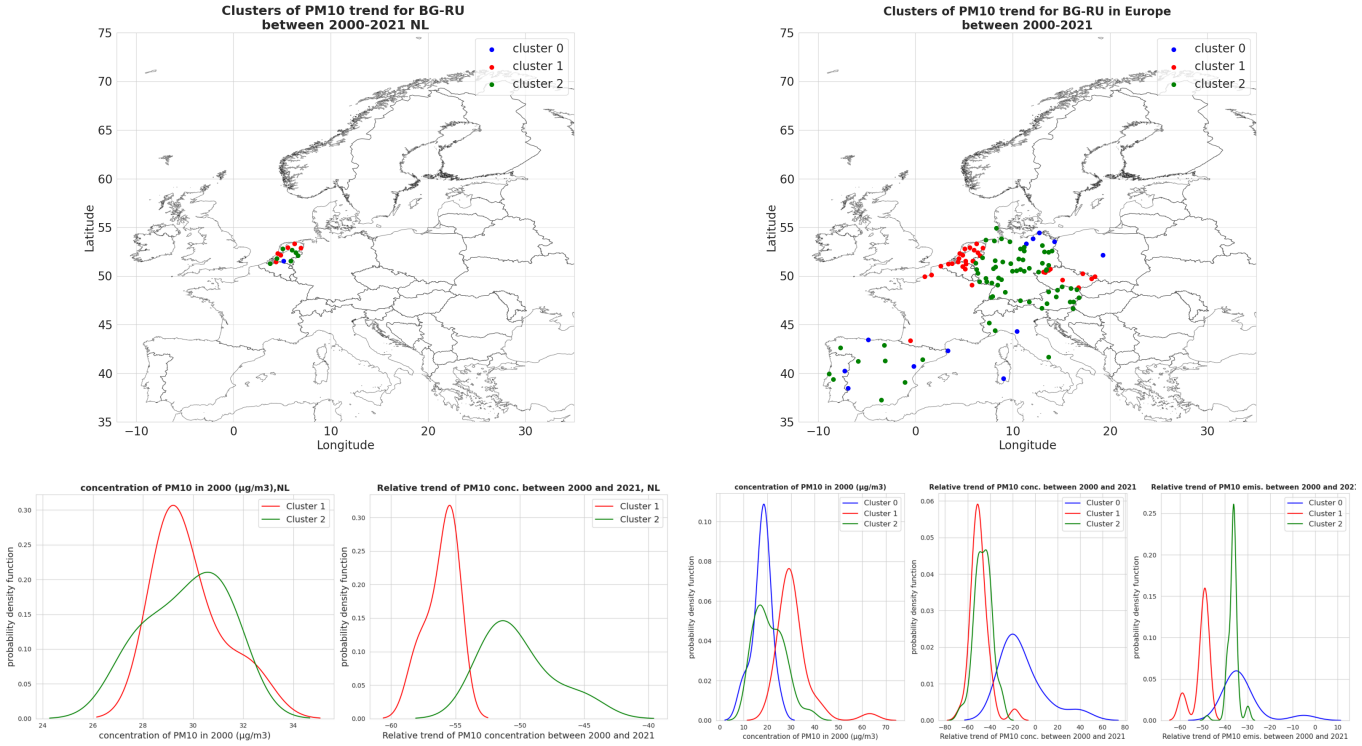

Figure A4.112: Clustering of the Netherlands (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-RU typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

21 Norway

The minimum number of stations required to assess the country-wise clustering is not met.

22 Poland

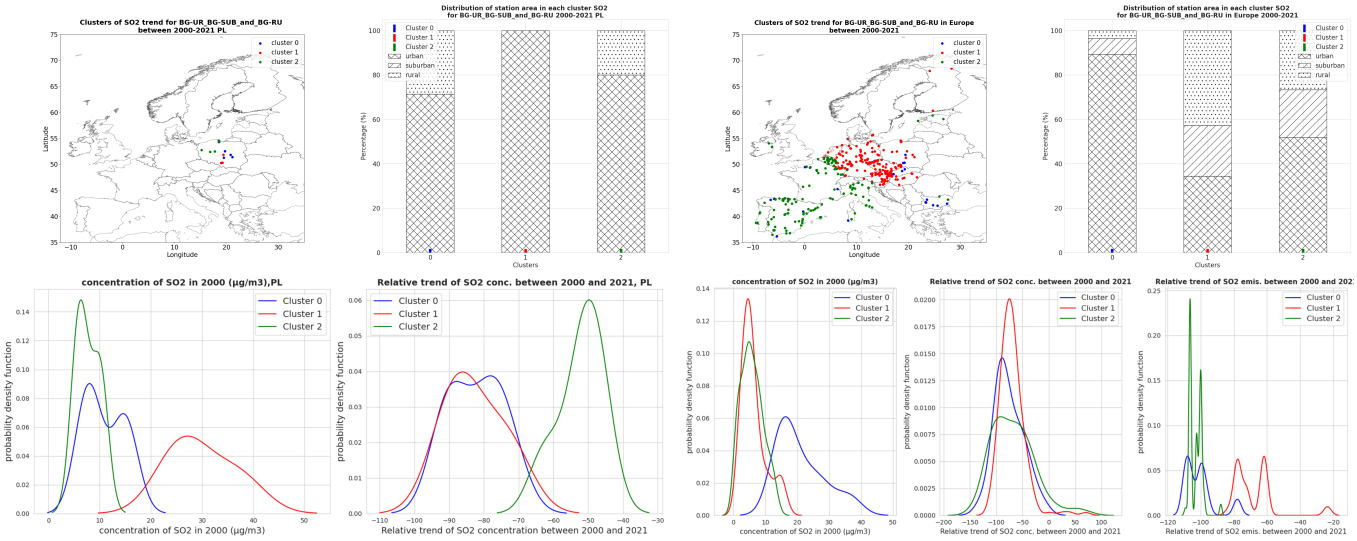

Figure A4.113: Clustering of the Poland (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of SOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

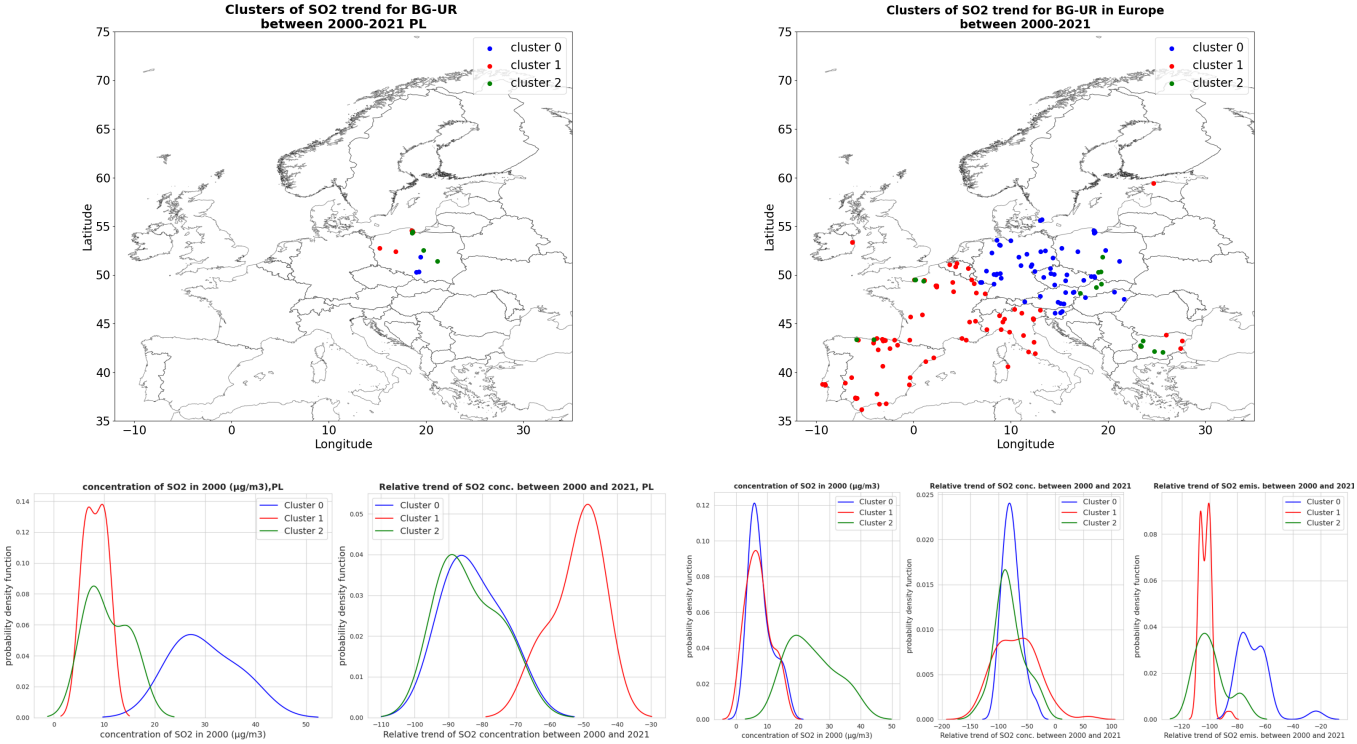

Figure A4.114: Clustering of the Poland (left) and European-wide (right) trends of SO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of SO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of SO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

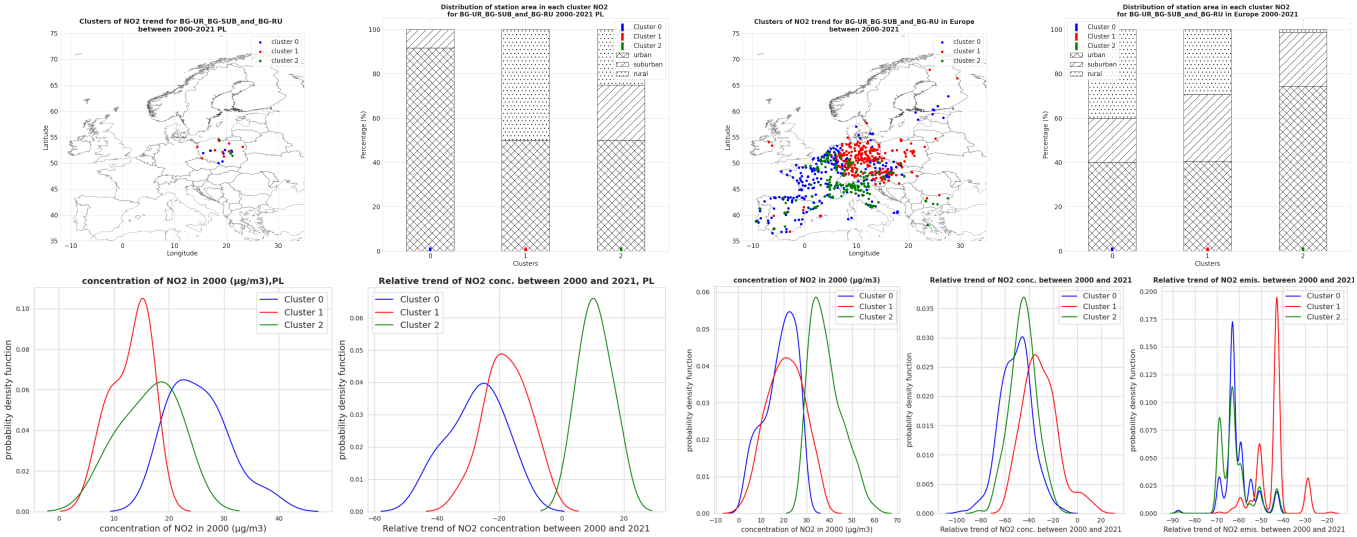

Figure A4.115: Clustering of the Poland (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

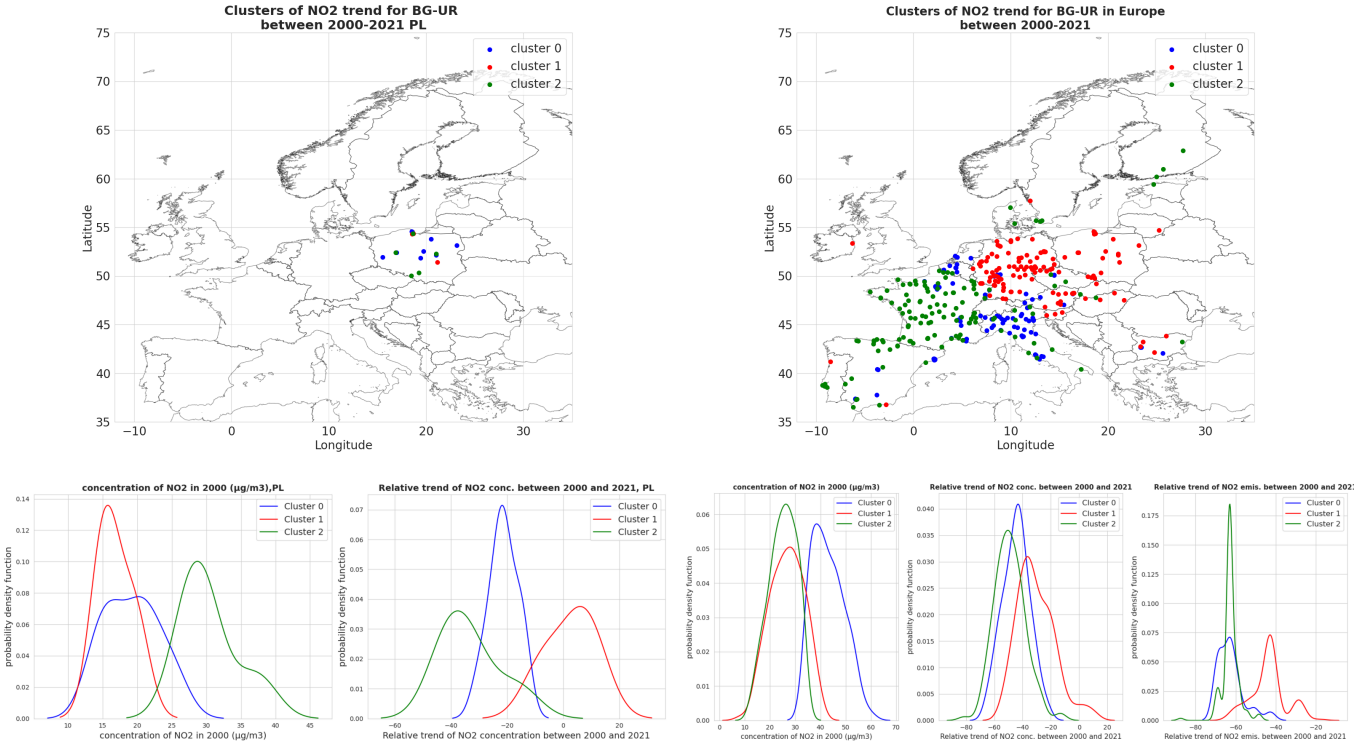

Figure A4.116: Clustering of the Poland (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

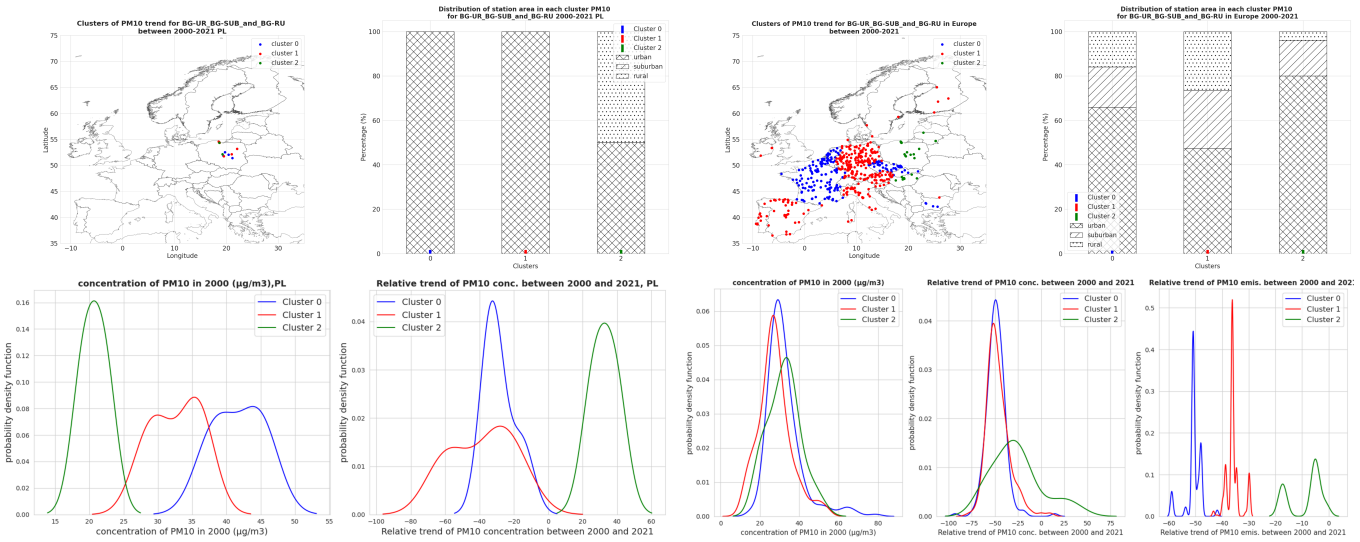

Figure A4.117: Clustering of the Poland (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

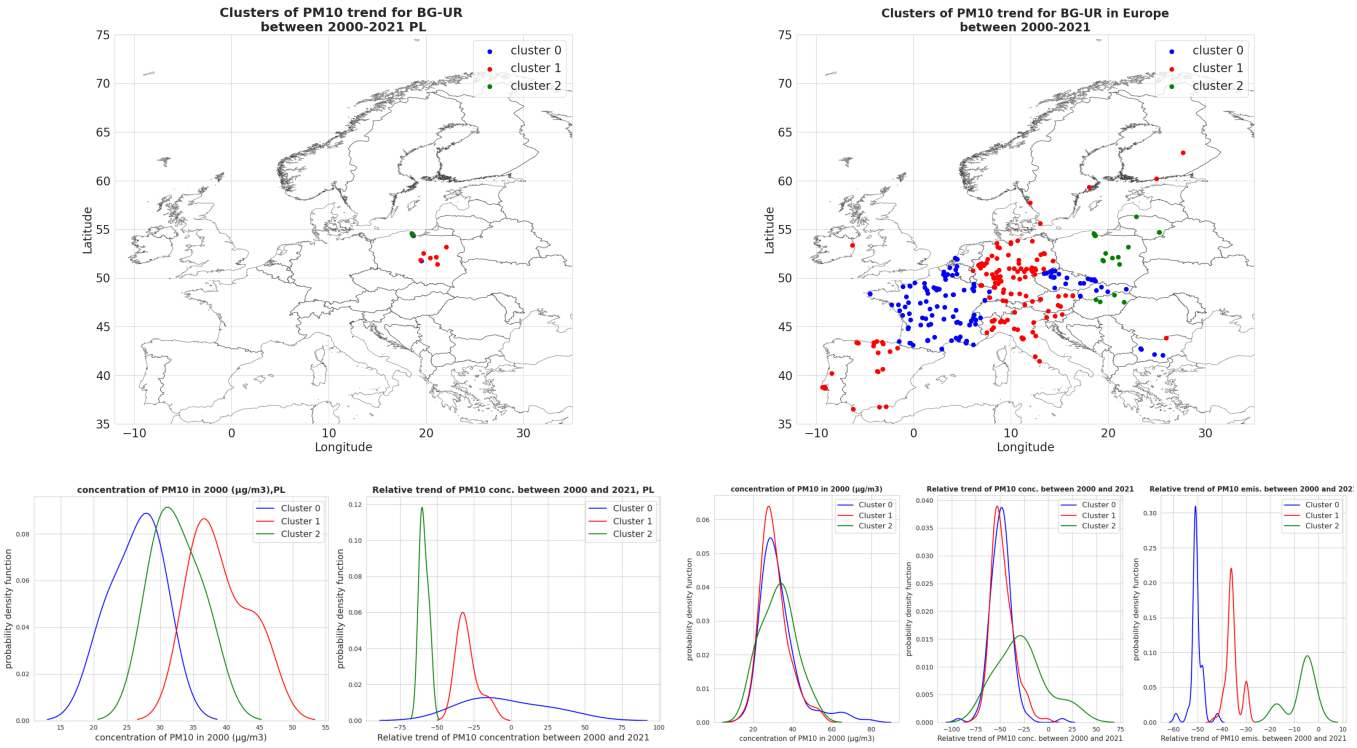

Figure A4.118: Clustering of the Poland (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

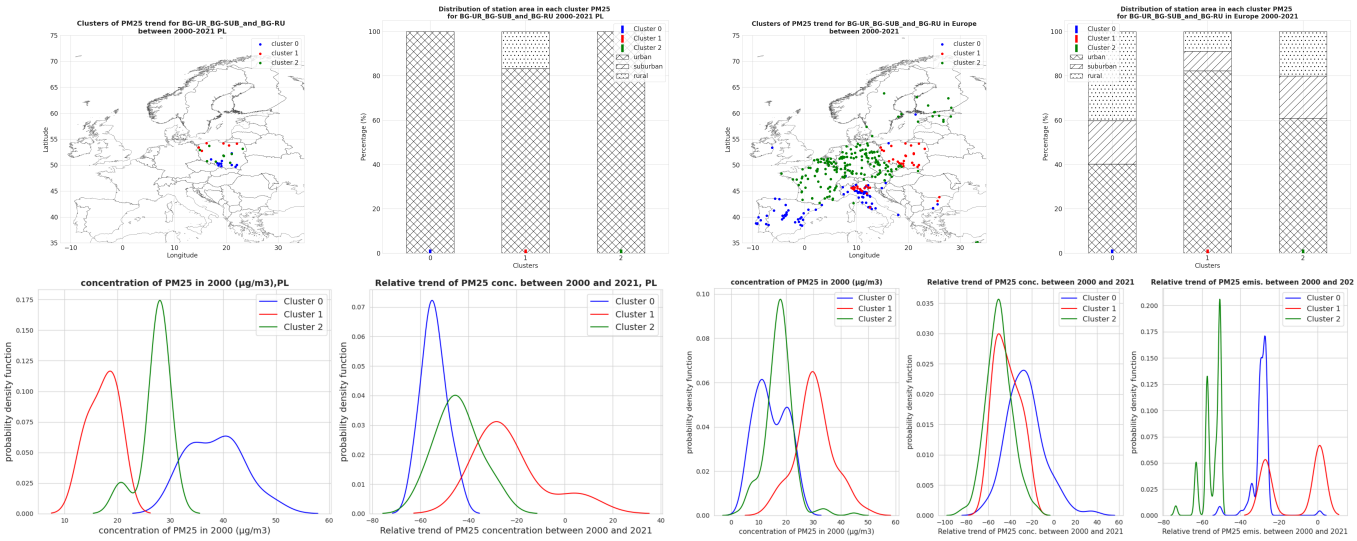

Figure A4.119: Clustering of the Poland (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM25 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

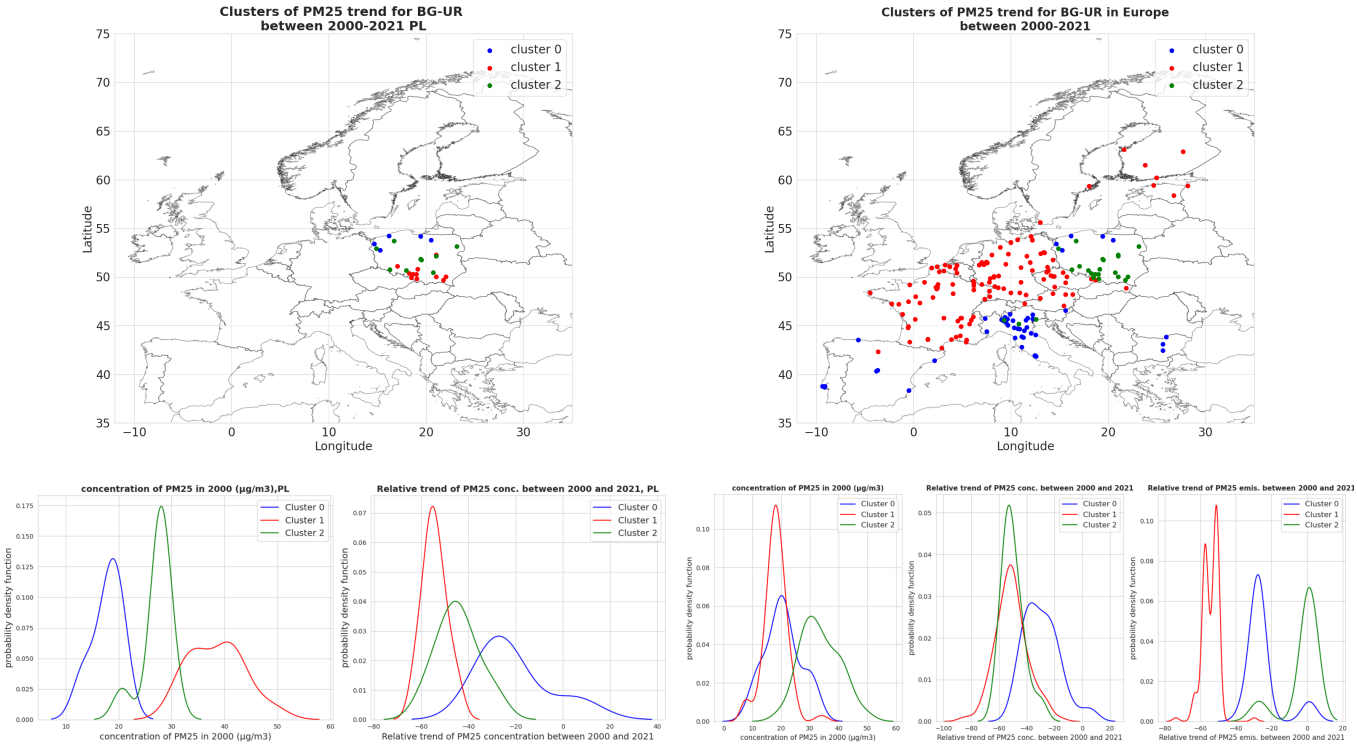

Figure A4.120: Clustering of the Poland (left) and European-wide (right) trends of PM25 (ug/m3) trends applied to stations in Europe. Top: distribution of stations of BG-UR typology in each of the three clusters. Bottom: distribution of PM25 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, and distribution of the relative trends of PM25 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters.

23 Portugal

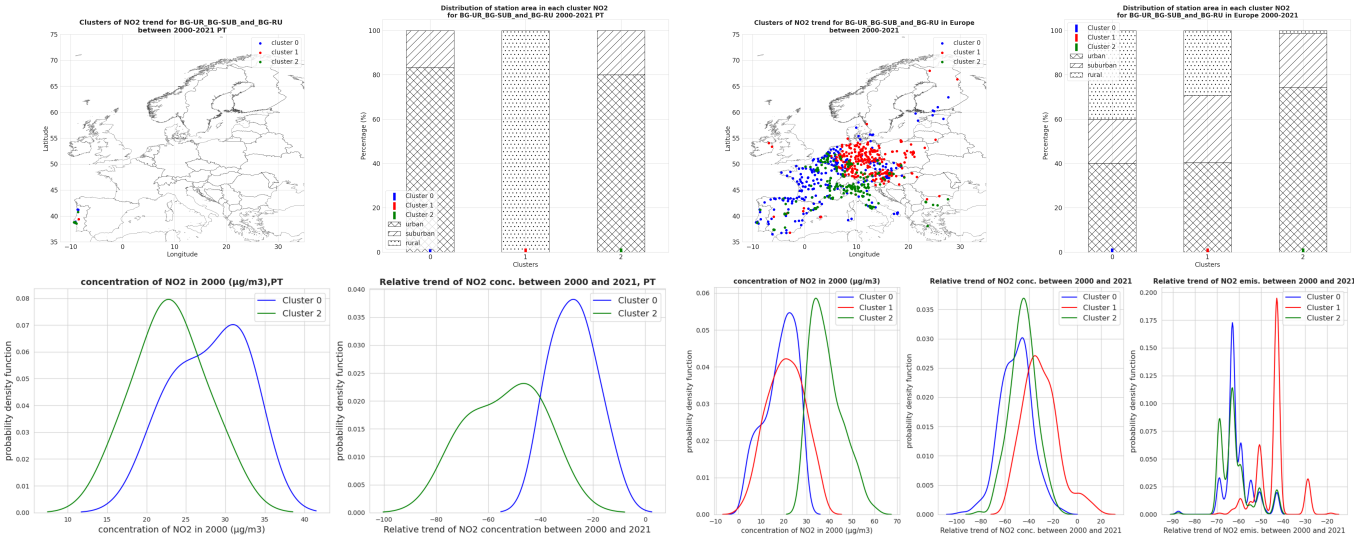

Figure A4.121: Clustering of the Portugal (left) and European-wide (right) trends of NO2 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of NO2 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of NO2 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of NOx emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

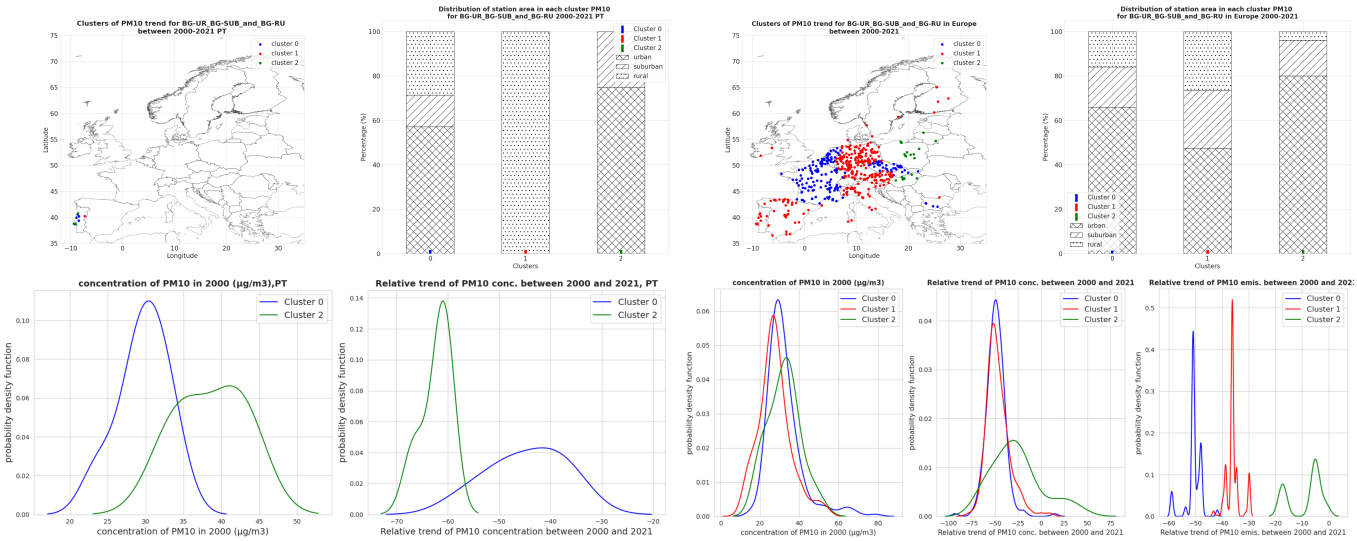

Figure A4.122: Clustering of the Portugal (left) and European-wide (right) trends of PM10 (ug/m3) trends applied to stations in Europe. Top left: map of stations falling in classes 0,1,2. Top right distribution (%) of station. Top right: distribution (%) of stations of either urban, suburban, and rural background typology in each of the three clusters. Bottom, from left to right: distribution of PM10 (ug/m3) concentrations estimated in 2000 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 (ug/m3) concentrations between 2000 and 2021 at stations belonging to each of the three clusters, distribution of the relative trends of PM10 emissions between 2000 and 2021 in the country corresponding to stations of the three clusters.

24 Romania

The minimum number of stations required to assess the country-wise clustering is not met.

25 Sweden

The minimum number of stations required to assess the country-wise clustering is not met.

26 Slovenia

The minimum number of stations required to assess the country-wise clustering is not met.

27 Slovakia

The minimum number of stations required to assess the country-wise clustering is not met.