Table S1: Average pollutant concentrations at the 11 studied stations during cold and warm period

| Station | CO (mg/m$^3$) | | $NO_2$ (μg/m$^3$) | | $O_3$ (μg/m$^3$) | | $SO_2$ (μg/m$^3$) | | $PM_{10}$ (μg/m$^3$) | | $PM_{2.5}$ (μg/m$^3$) | | $C_6H_6$ (μg/m$^3$) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | cold | warm | cold | warm | cold | warm | cold | warm | cold | warm | cold | warm | cold | warm |
| **AGP** | | | 12.5 | 11.1 | 66.4 | 95.6 | | | 17.6 | 20.8 | 11.3 | 12.0 | | |
| **ARI** | | | 46.1 | 45.3 | | | 3.9 | 4.5 | 38.6 | 33.0 | 21.9 | 15.8 | | |
| **PIR** | 0.9 | 0.6 | 54.0 | 64.8 | 28.9 | 44.7 | 8.7 | 9.0 | 39.3 | 36.0 | 18.2 | 14.4 | 3.4 | 2.1 |
| **THR** | | | 8.0 | 6.2 | 75.4 | 102.7 | | | 17.3 | 20.6 | 12.4 | 12.9 | | |
| **ELE** | | | 27.0 | 23.8 | 48.0 | 81.4 | 8.1 | 9.1 | 26.6 | 27.3 | 17.7 | 15.9 | 1.1 | 0.4 |
| **AGS** | 0.7 | 0.4 | 32.0 | 24.2 | 34.0 | 58.7 | 6.8 | 3.6 | 45.9 | 33.5 | 26.3 | 15.1 | 4.8 | 2.5 |
| **PAO** | | | 8.9 | 4.9 | 66.3 | 94.8 | | | 18.8 | 18.3 | 13.0 | 9.4 | | |
| **PAT** | 0.7 | 0.4 | 33.7 | 26.5 | | | 6.2 | 5.5 | 33.6 | 27.0 | 20.1 | 11.5 | 3.8 | 1.5 |
| **VOL** | | | | | | | | | 36.2 | 25.8 | 24.6 | 11.0 | | |
| **IOA** | 0.7 | 0.2 | 28.9 | 15.5 | 44.6 | 76.7 | 9.5 | 7.8 | 39.6 | 20.5 | 33.2 | 11.0 | | |
| **KOZ** | | | | | | | | | 15.7 | 16.3 | 11.8 | 9.5 | | |

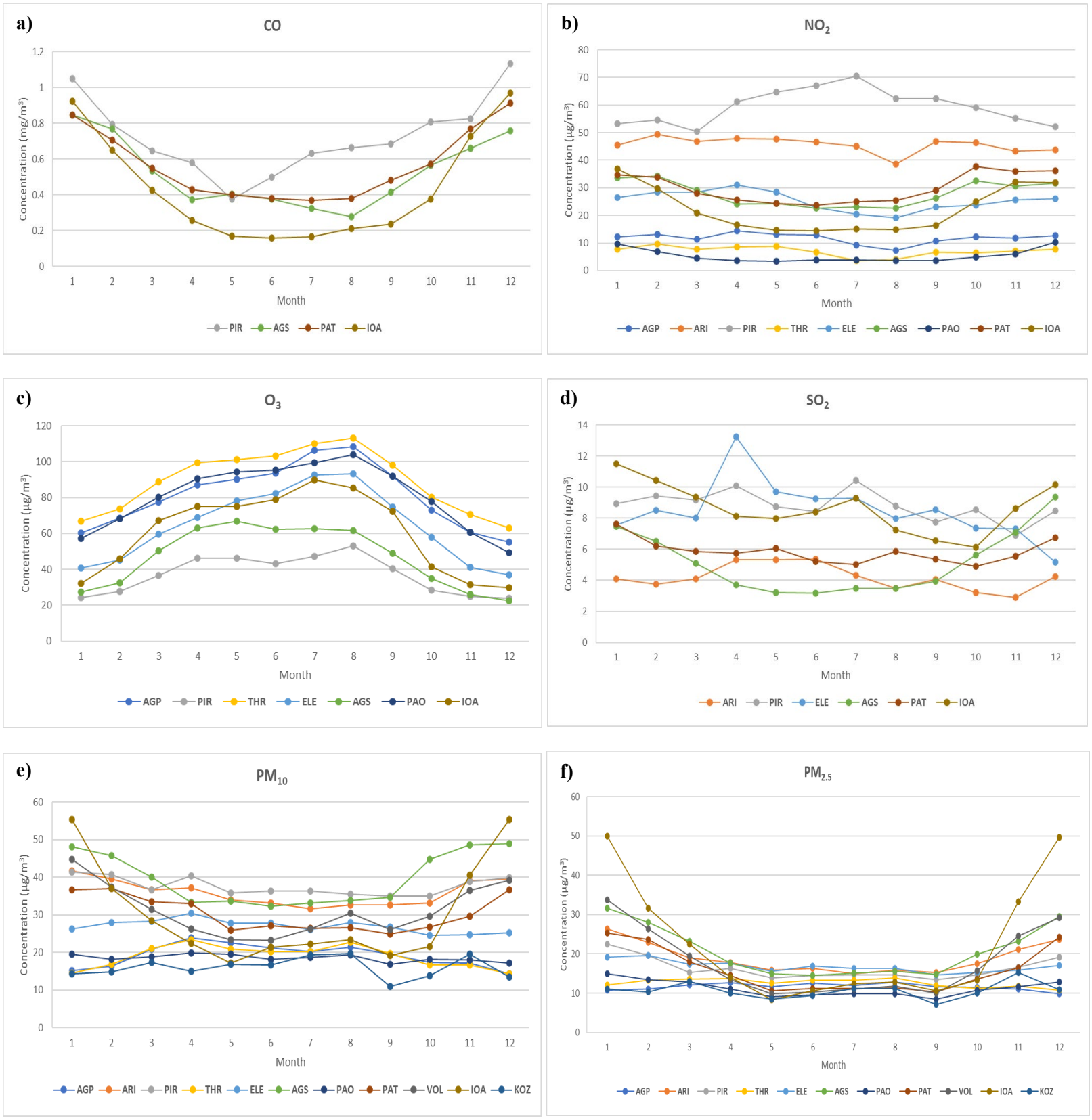


Figure S1: Monthly average concentrations of a) CO, b) $NO_2$, c) $O_3$, d) $SO_2$, e) $PM_{10}$ and f) $PM_{2.5}$

Table S2: Pearson correlation coefficients among hourly pollutant concentrations at a) AGP b) ARI c) PIR d) THR e) ELE f) AGS g) PAO h) PAT i) VOL j) IOA k) KOZ stations.

| **a) AGP** | $NO_2$ | $O_3$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| $NO_2$ | 1 | -0.265* | 0.110* | 0.243* |
| $O_3$ | | 1 | 0.193* | 0.157* |
| $PM_{10}$ | | | 1 | 0.842* |
| $PM_{2.5}$ | | | | 1 |

| **b) ARI** | $NO_2$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| $NO_2$ | 1 | 0.246* | 0.338* | 0.372* |
| $SO_2$ | | 1 | 0.176* | 0.146* |
| $PM_{10}$ | | | 1 | 0.821* |
| $PM_{2.5}$ | | | | 1 |

| **c) PIR** | CO | $NO_2$ | $O_3$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ | $C_6H_6$ |
|---|---|---|---|---|---|---|---|
| CO | 1 | 0.293* | -0.418* | 0.052* | 0.534* | 0.539* | 0.747* |
| $NO_2$ | | 1 | -0.579* | 0.336* | 0.325* | 0.266* | 0.379* |
| $O_3$ | | | 1 | -0.130* | -0.286* | -0.334* | -0.492* |
| $SO_2$ | | | | 1 | 0.182* | 0.195* | 0.117* |
| $PM_{10}$ | | | | | 1 | 0.820* | 0.600* |
| $PM_{2.5}$ | | | | | | 1 | 0.662* |
| $C_6H_6$ | | | | | | | 1 |

| **d) THR** | $NO_2$ | $O_3$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| $NO_2$ | 1 | -0.162* | 0.254* | 0.296* |
| $O_3$ | | 1 | 0.142* | 0.091* |
| $PM_{10}$ | | | 1 | 0.719* |
| $PM_{2.5}$ | | | | 1 |

| **e) ELE** | $NO_2$ | $O_3$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ | $C_6H_6$ |
|---|---|---|---|---|---|---|
| $NO_2$ | 1 | -0.614* | 0.208* | 0.300* | 0.369* | 0.511* |
| $O_3$ | | 1 | 0.067* | -0.097* | -0.223* | -0.502* |
| $SO_2$ | | | 1 | 0.208* | 0.188* | 0.084* |
| $PM_{10}$ | | | | 1 | 0.738* | 0.226* |
| $PM_{2.5}$ | | | | | 1 | 0.405* |
| $C_6H_6$ | | | | | | 1 |

| **f) AGS** | CO | $NO_2$ | $O_3$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ | $C_6H_6$ |
|---|---|---|---|---|---|---|---|
| CO | 1 | 0.647* | -0.439* | 0.402* | 0.521* | 0.598* | 0.806* |
| $NO_2$ | | 1 | -0.579* | 0.294* | 0.491* | 0.439* | 0.616* |
| $O_3$ | | | 1 | -0.230* | -0.432* | -0.450* | -0.518* |
| $SO_2$ | | | | 1 | 0.240* | 0.281* | 0.284* |
| $PM_{10}$ | | | | | 1 | 0.815* | 0.649* |
| $PM_{2.5}$ | | | | | | 1 | 0.662* |
| $C_6H_6$ | | | | | | | 1 |

| **g) PAO** | $NO_2$ | $O_3$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| $NO_2$ | 1 | -,496* | ,367* | ,452* |
| $O_3$ | | 1 | 0,002 | -,264* |
| $PM_{10}$ | | | 1 | ,735* |
| $PM_{2.5}$ | | | | 1 |

| **h) PAT** | CO | $NO_2$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ | $C_6H_6$ |
|---|---|---|---|---|---|---|
| CO | 1 | 0.676* | 0.288* | 0.426* | 0.618* | 0.843* |
| $NO_2$ | | 1 | 0.182* | 0.295* | 0.371* | 0.628* |
| $SO_2$ | | | 1 | 0.129* | 0.185* | 0.239* |
| $PM_{10}$ | | | | 1 | 0.809* | 0.578* |
| $PM_{2.5}$ | | | | | 1 | 0.728* |
| $C_6H_6$ | | | | | | 1 |

| **i) VOL** | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|
| $PM_{10}$ | 1 | 0.864* |
| $PM_{2.5}$ | | 1 |

| **j) IOA** | CO | $NO_2$ | $O_3$ | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| CO | 1 | 0.740* | -0.580* | 0.485* | 0.878* | 0.924* |
| $NO_2$ | | 1 | -0.662* | 0.492* | 0.629* | 0.627* |
| $O_3$ | | | 1 | -0.168* | -0.455* | -0.486* |
| $SO_2$ | | | | 1 | 0.442* | 0.457* |
| $PM_{10}$ | | | | | 1 | 0.967* |
| $PM_{2.5}$ | | | | | | 1 |

| **k) KOZ** | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|
| $PM_{10}$ | 1 | 0.800* |
| $PM_{2.5}$ | | 1 |

* Correlation is significant at the 0.01 level.

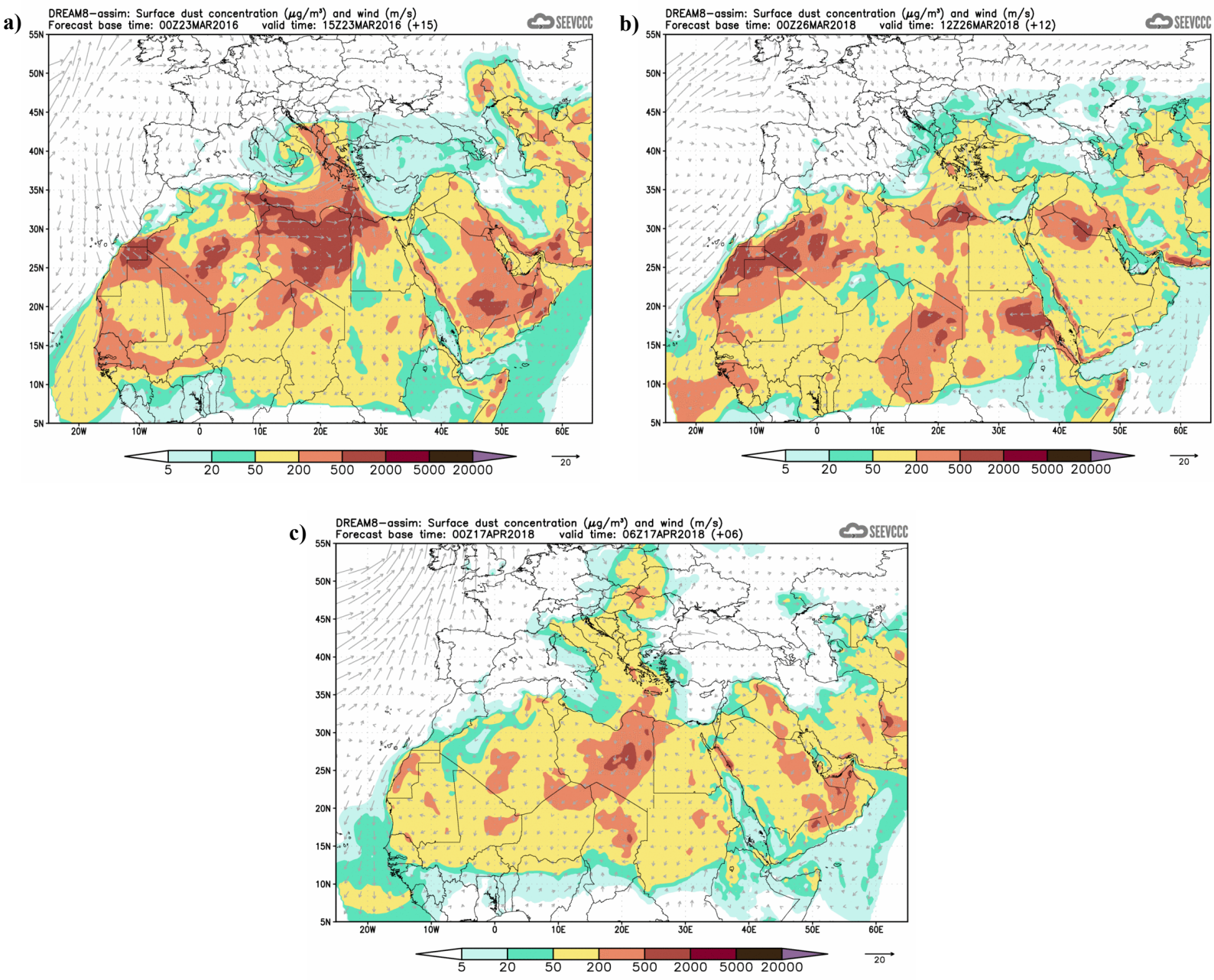


Figure S2: Major Saharan dust intrusions affecting Greece on a) 23/3/2016 b) 26/3/2018 and c) 17/4/2018 (Source: Dust Regional Atmospheric Model (Dream), http://www.seevccc.rs/?p=14)

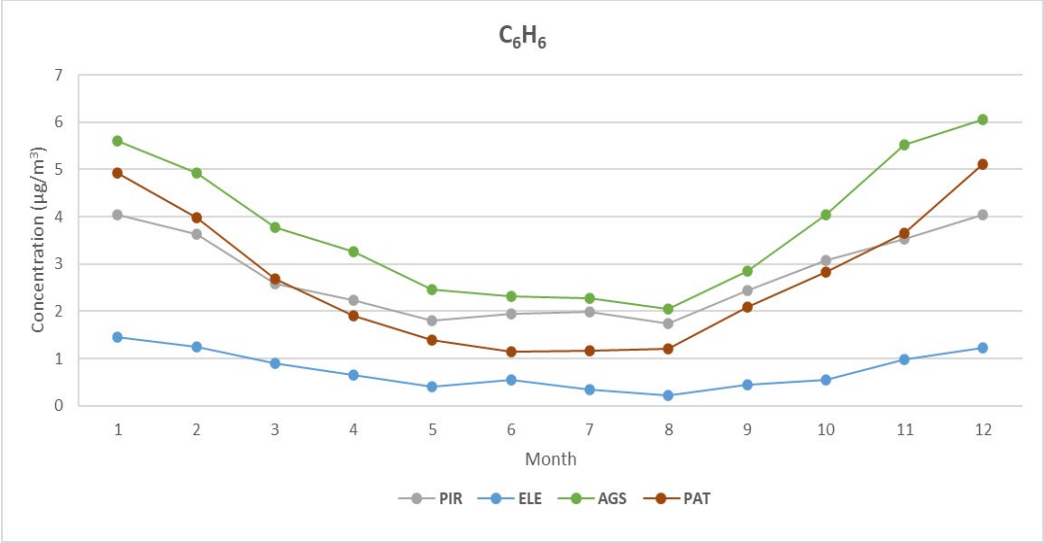


Figure S3: Monthly average concentrations of benzene

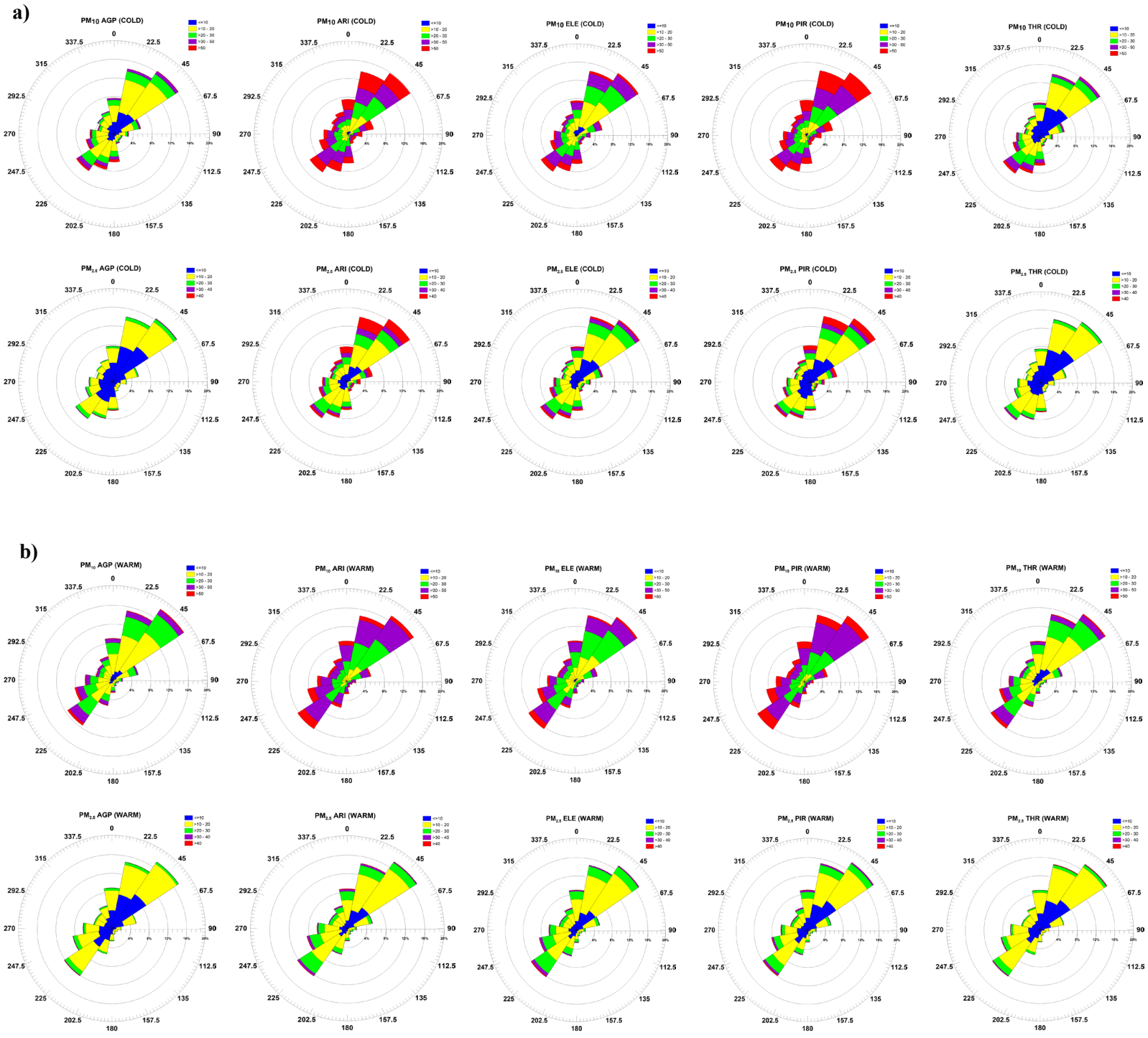


Figure S4: Pollution roses for $PM_{10}$ and $PM_{2.5}$ for all the stations in Athens during a) cold period and b) warm period