Annex 1 – Figures and Tables

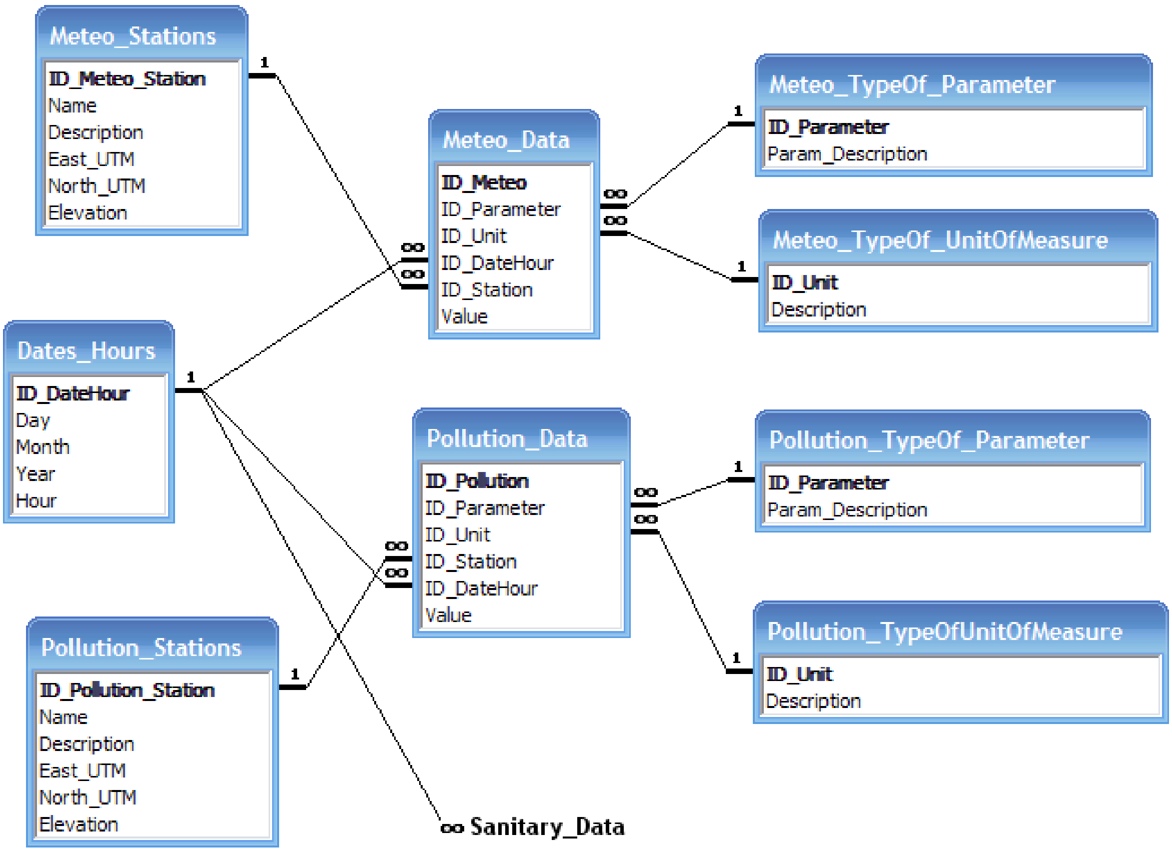


Figure 1. Example of Relational database scheme for air pollution and climatic data. The relation to sanitary data (bottom centre, in bold) is based on both temporal and GIS-based spatial information.

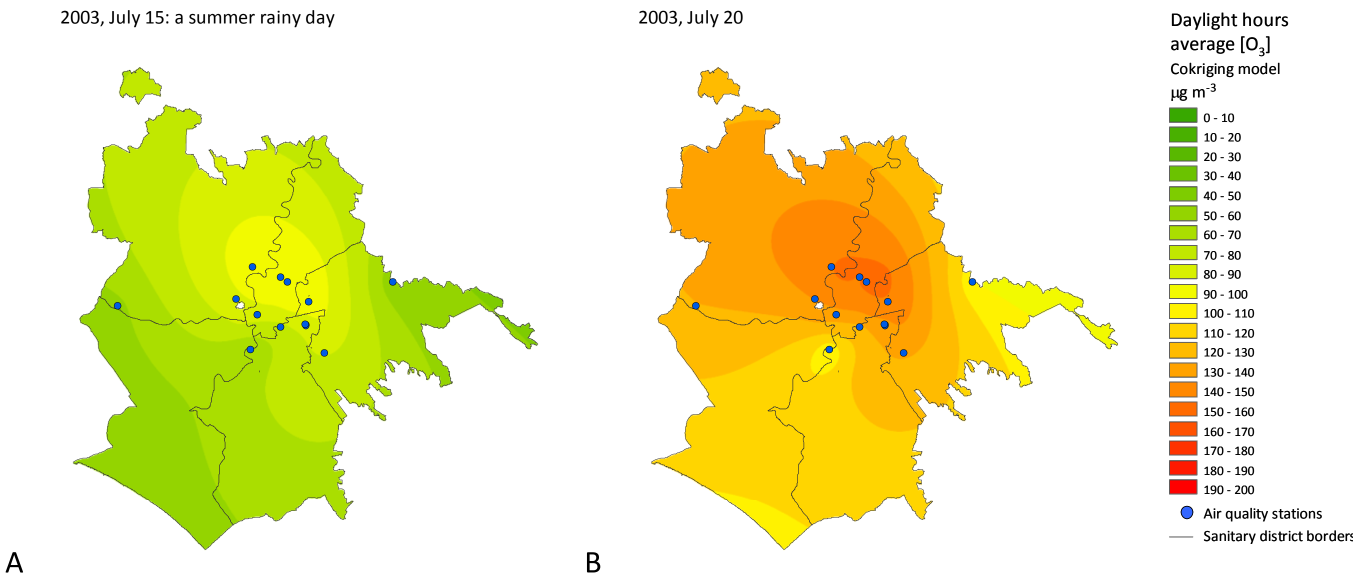


Figure 2. Example of daily O_3 distribution maps in the municipality of Rome. Co-kriging model of O_3 distribution for July 15 (A) and 20 (B), 2003.

Examples of pollution maps with description of pollutant variability (Athens case)

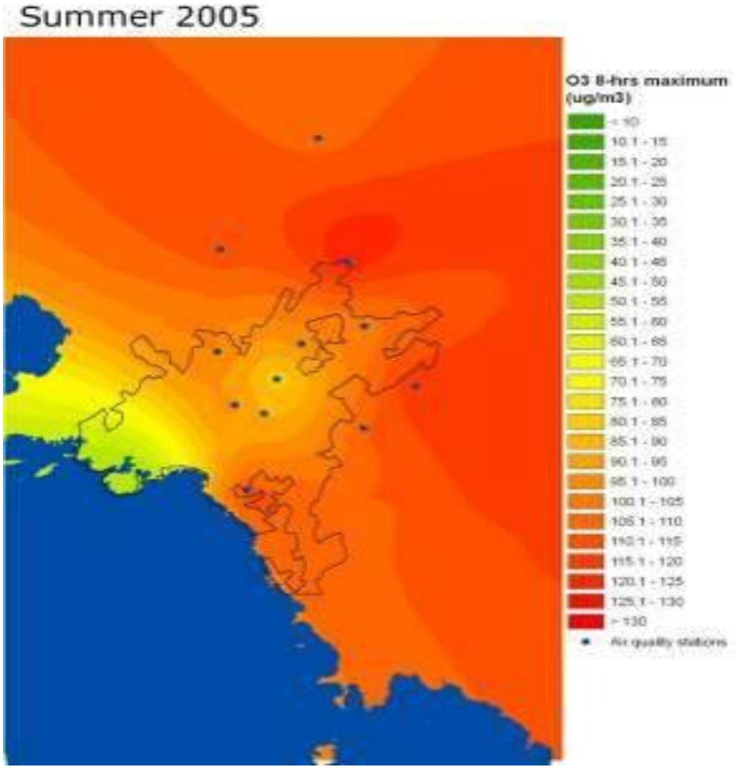


Figure 3. Kriging model of O_3 8-hrs maximum daily average seasonal distributions in the Greater Athens Area in summer 2005.

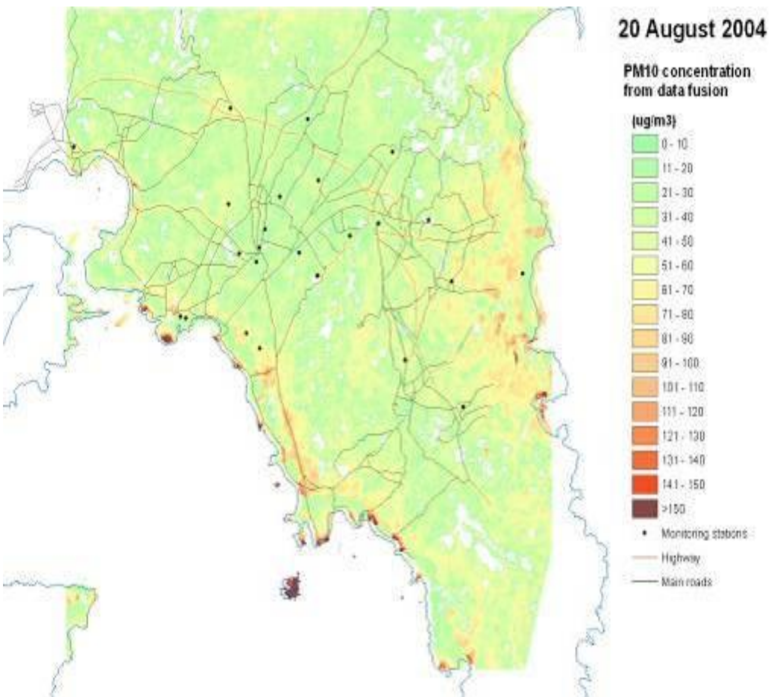


Figure 4. High resolution map of ambient air PM_{10} concentration filed in Athens on August 20th 2004 (black dots denote the location of the ground monitors).

Table 1

$$\mathrm{Ln}(\mu_t) = \beta_0 + \Sigma\, \beta_i x_{it} + \Sigma\, \gamma_n Y_{t-n}$$

Table 2

$$AF = \frac{\sum_i P_i \times RR_i - 1}{\sum_i P_i \times RR_i}$$

Table 3

Air pollutant	**Outcome (Short-Term)**	Cities	**RR (95% CI)**
PM_{10}	Cardiovascular mortality	Athens Madrid Rome	ns **1.0175** (1.0060-1.0280) **1.027** (1.008-1.039)
PM_{10}	Respiratory mortality	Athens Madrid Rome	**ns** **1.0202 (**1.0079 – 1.0325) **1.049** (1.007-1.074)
O_3	Cardiovascular mortality	Athens Madrid Rome	ns **1.0300** (1.0070-1.0531) **1.005** (1.002-1.008)
O_3	Respiratory mortality	Athens Madrid Rome	**1.0247** (1.0094 – 1.0403) **1.0411** (1.0050-1.0773) **1.008** (1.004-1.011)
PM_{10}	Cardiovascular morbidity	Athens Madrid Rome	**1.0030** (0.9996 - 1.0064) **1.0170** (1.0100-1.0240) **1.008** (1.005-1.010)
PM_{10}	Respiratory morbidity	Athens Madrid Rome	**1.0220** (1.0175 - 1.0265) **1.0090** (1.0020-1.0160) **1.033 (**1.027 – 1.039)
O_3	Cardiovascular morbidity	Athens Madrid Rome	**1.0154** (1.0119 - 1.0189) **0.9890** (0.9840-0.9940) **0.998** (0.985-1.007)
O_3	Respiratory morbidity	Athens Madrid Rome	**1.0276** (1.0236 - 1.0316) **1.0120** (1.0050-1.0180) **1.010** (1.004 – 1.013)

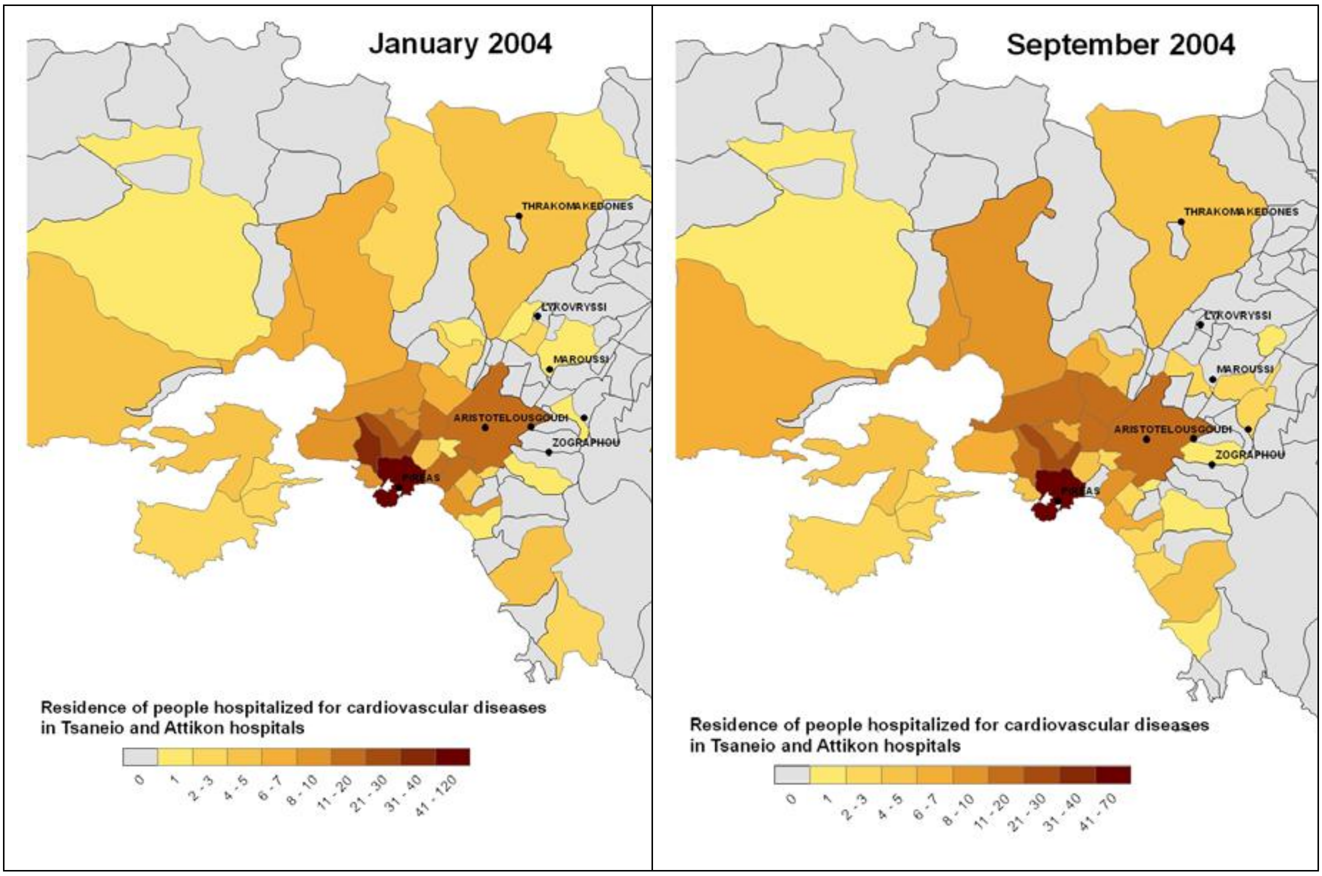


Figure 5. Spatial representation of the number of hospital admissions for cardiovascular diseases according to the residence of the patients in March 2004 (left) and September 2004 (right)

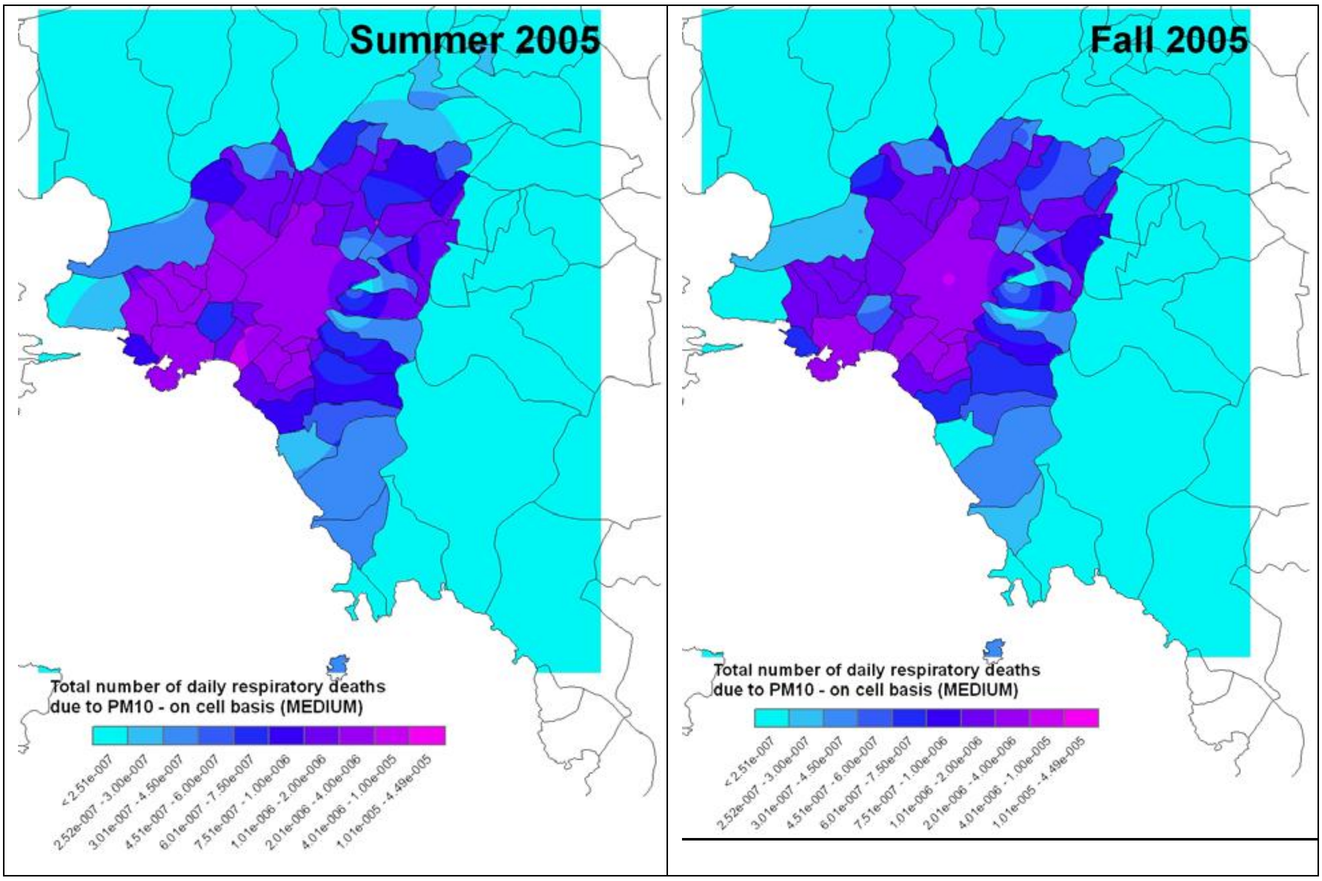


Figure 6. Total number of respiratory deaths on cell by cell basis due to the average seasonal PM10 concentration in 2005.

Dresden

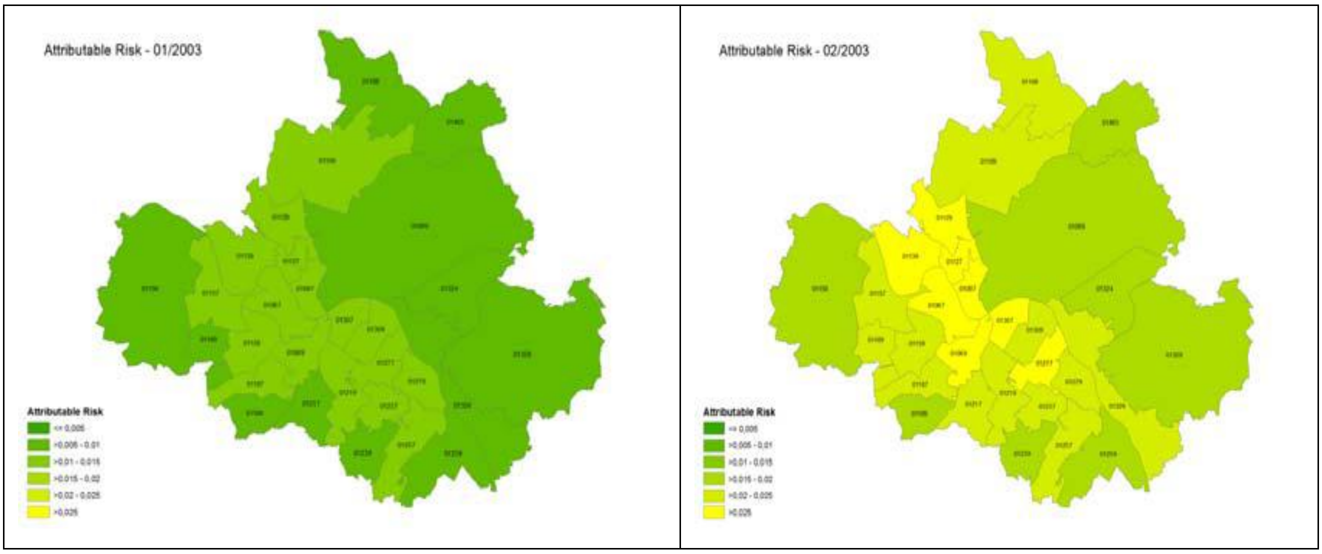


Figure 7. Attributable fraction: PM_{10} and all-cause mortality (per months) in 2003.

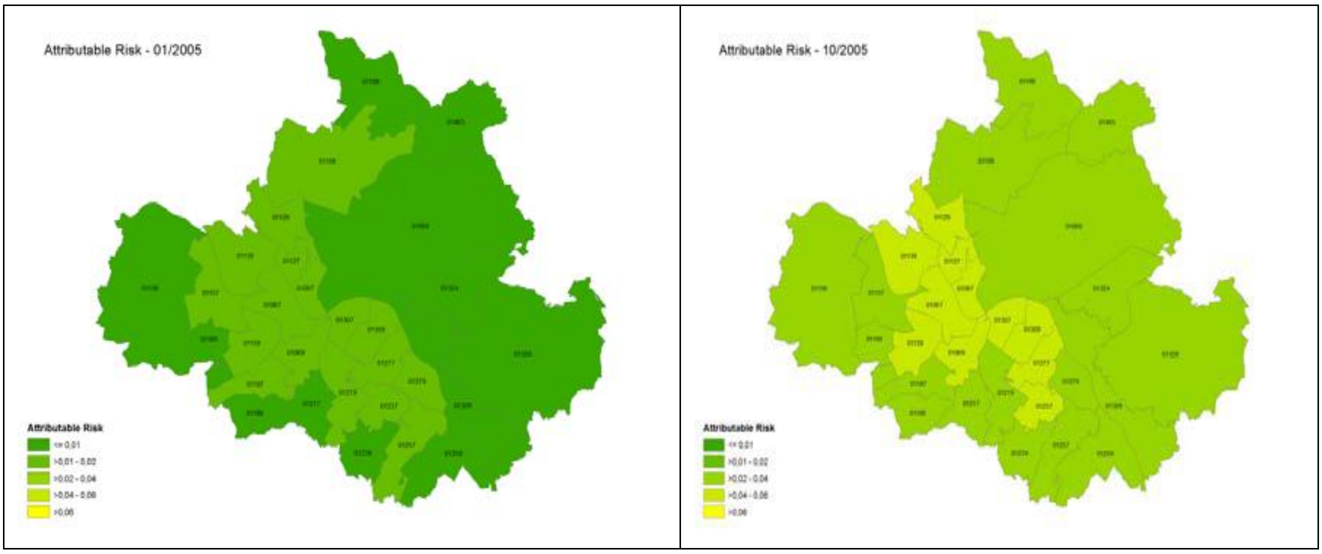


Figure 8. Attributable fraction for PM_{10} short-term exposure and respiratory diseases in 2005.

Madrid

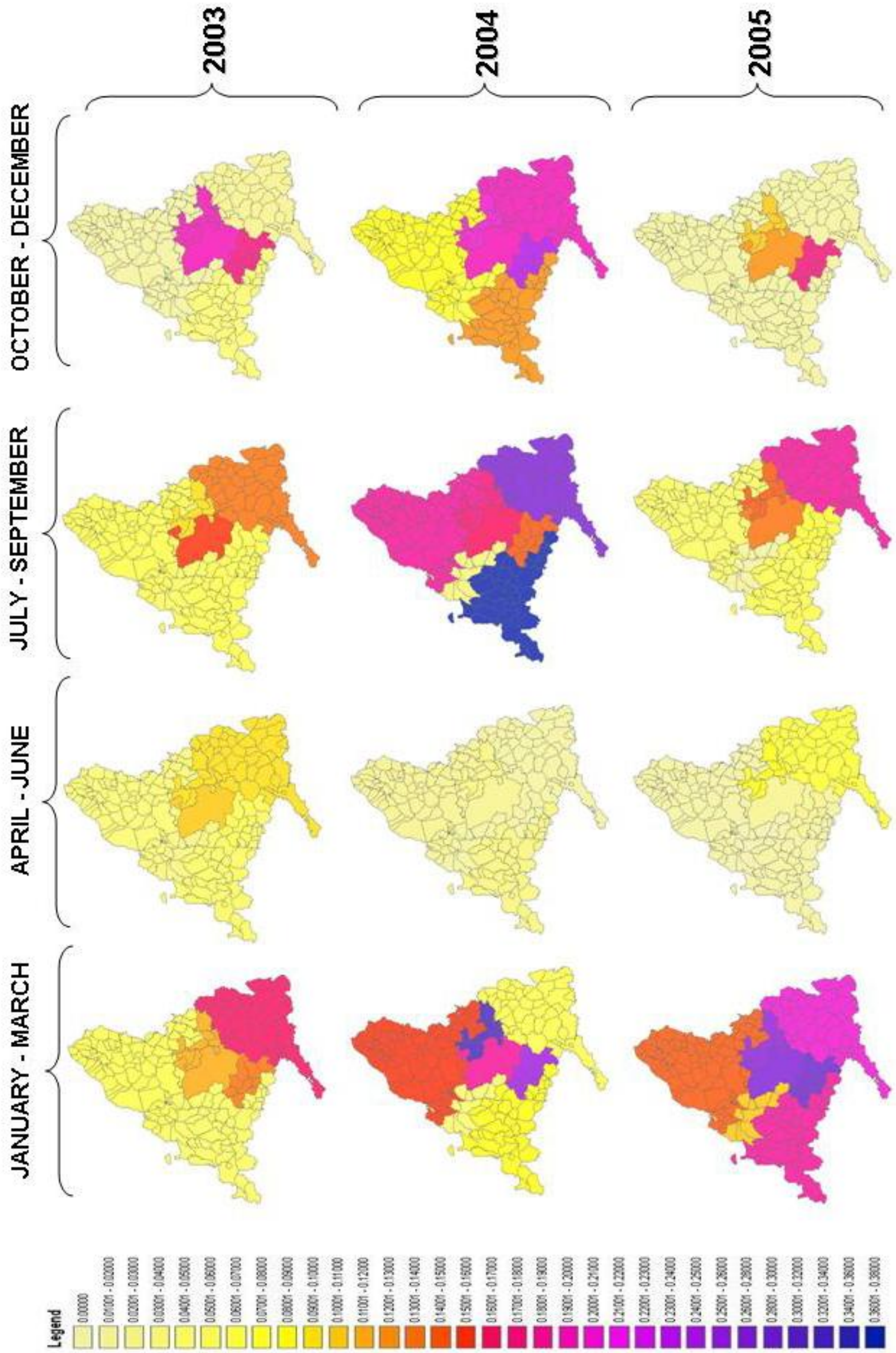


Figure 9. Quarterly maps representing the number (per 100000 inhabitants) of respiratory deaths due to PM10 (2003-2005 period).

Rome

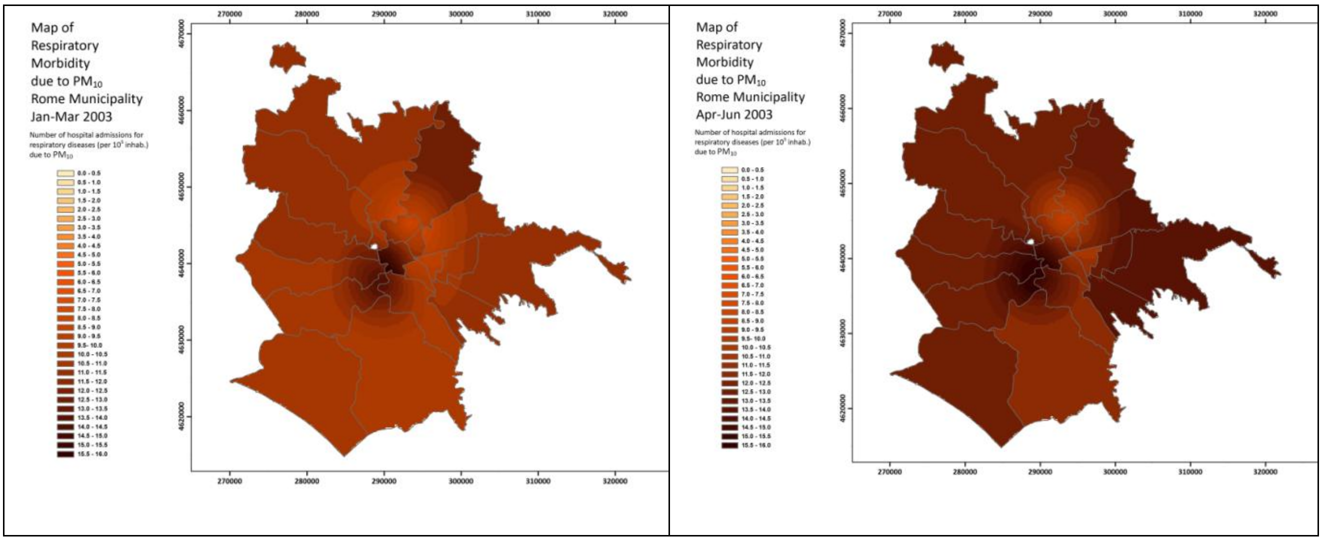


Figure 10. Hospital admission for Respiratory diseases due to PM10 in 2003 (Jan-Mar and Apr-Jun)

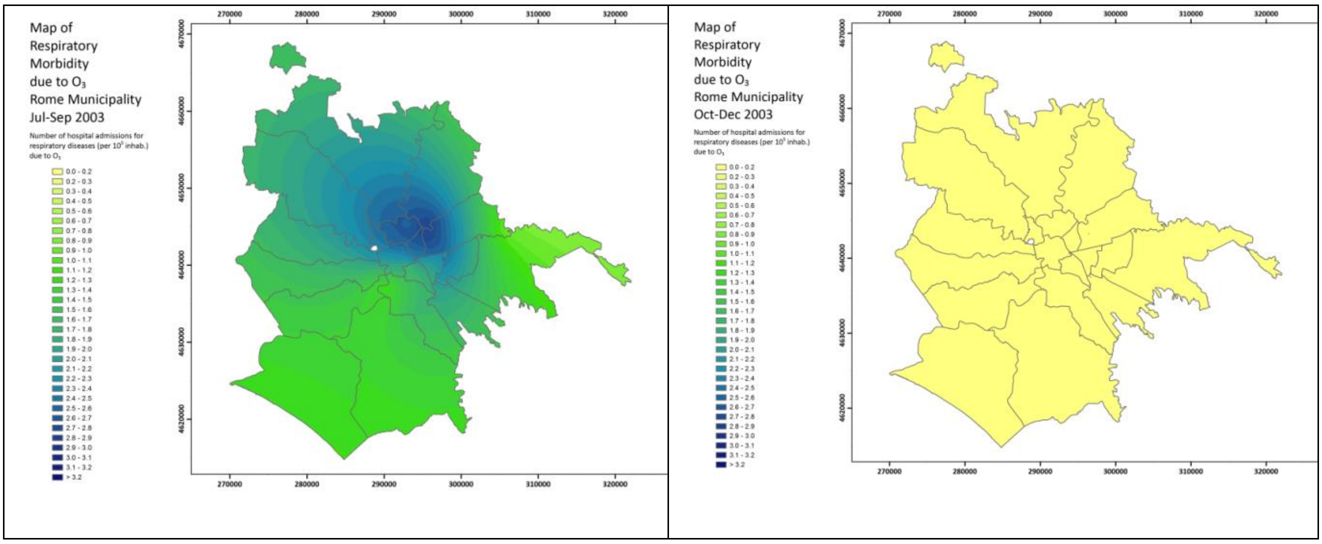


Figure 11. Hospital admission for Respiratory diseases due to Ozone in 2003 (Jul-Sep and Oct-Dec).

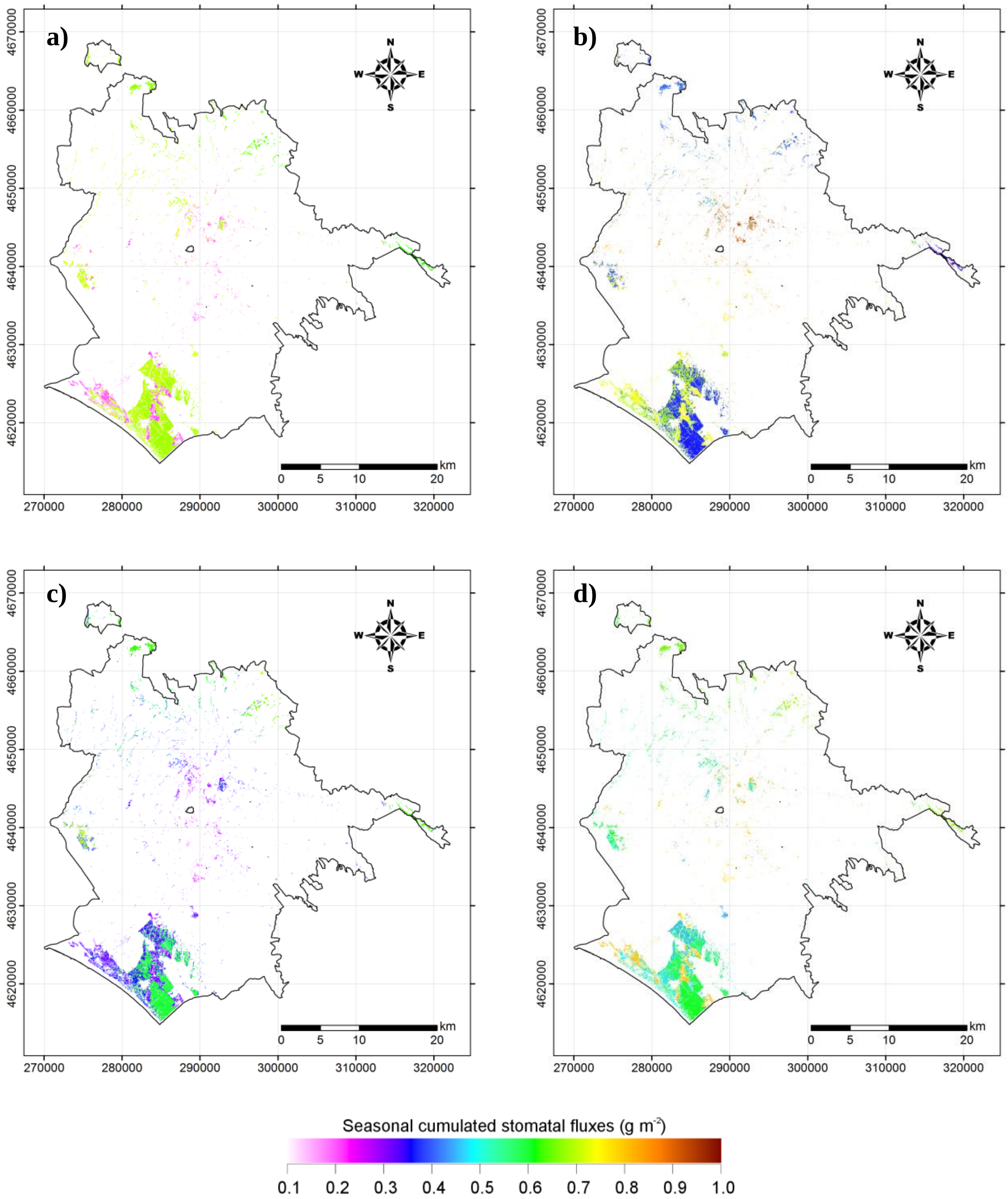
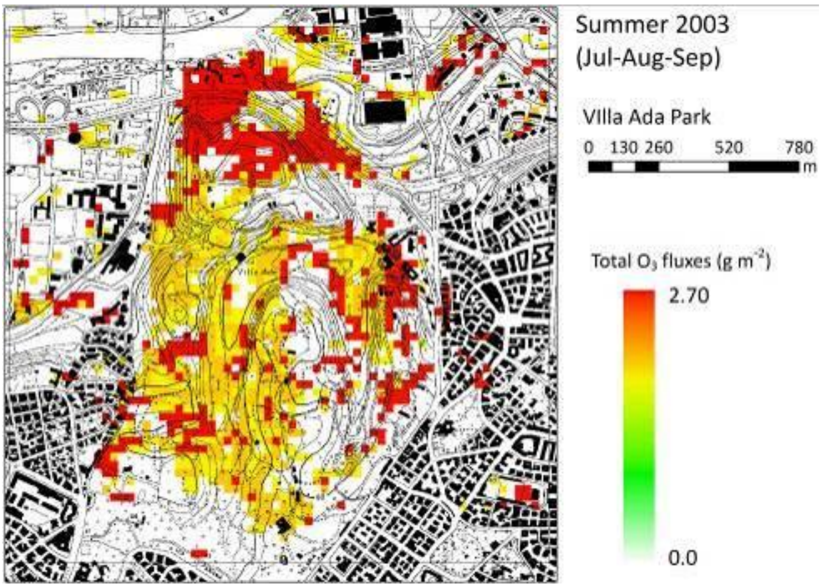
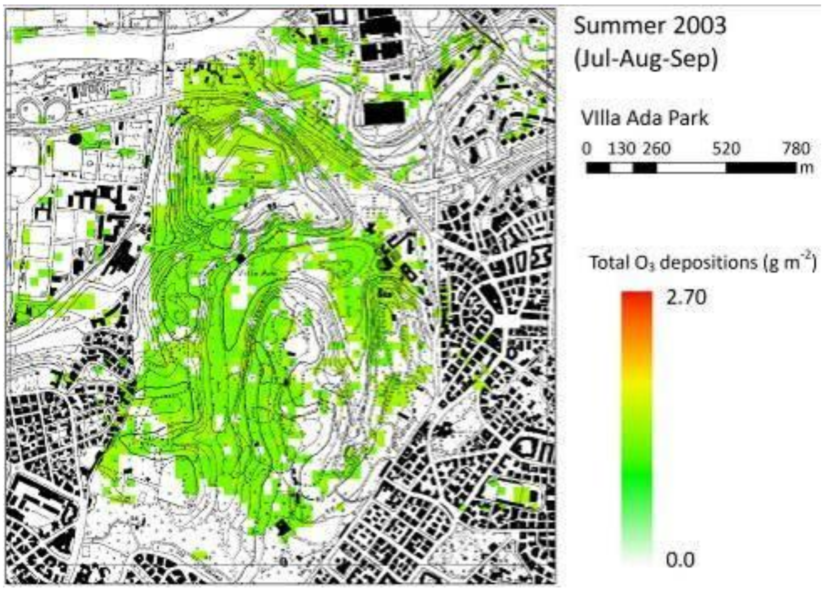


Figure 12. Examples of seasonal cumulated stomatal O3 uptake maps by urban trees of Rome: spring and summer 2003 (a and b, respectively), and spring and summer 2004 (c and d, respectively). (From Manes et al., submitted).



a)



b)

Figure 13. Example of seasonal cumulated O3 fluxes to woody vegetation (a), and total O_3 depositions estimated for the “no vegetation” scenario (bare soil replacing vegetation) (b), in the urban park of Villa Ada (Summer 2003: 1st June – 30th September).

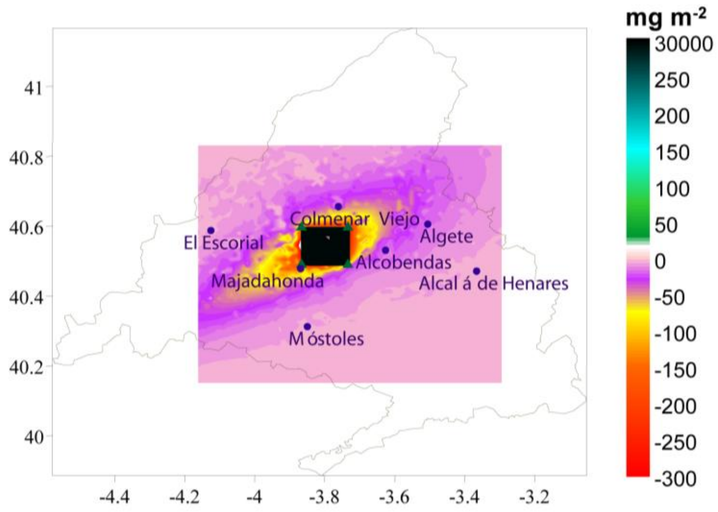


Figure 14. Differences in O_3 deposition (mg m^{-2}) between 'Base Case' and 'No Vegetation' scenario ('Base Case' minus 'No Vegetation') simulated for the period April-September 2003 (Alonso et al., 2011). The green triangles indicate the area where land use has been changed.

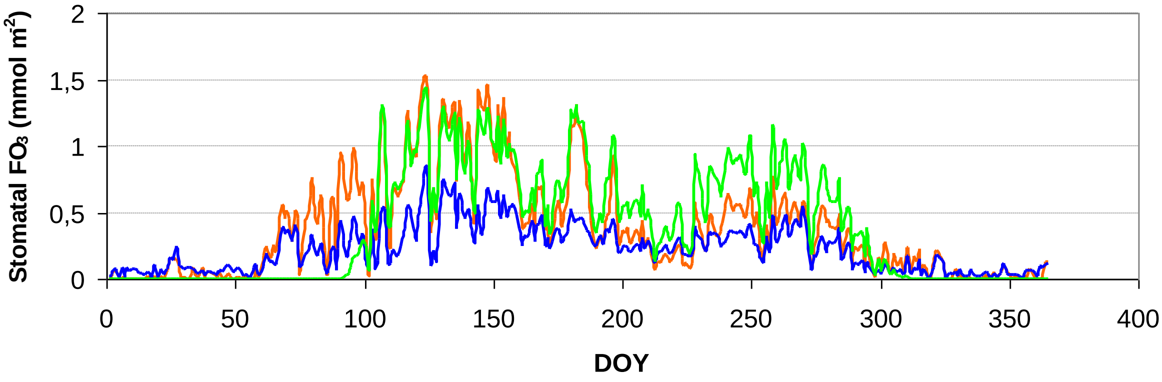


Figure 15. Modelled daily stomatal uptake ozone fluxes (mmol O_3 m^{-2}) at El Pardo area in 2003 for different vegetation types: evergreen broadleaf forest, red line; conifer forest, blue line; deciduous forest, green line (Alonso et al., 2011).