AIR QUALITY IN PORTUGAL: 1995-2013 ASSESSMENT

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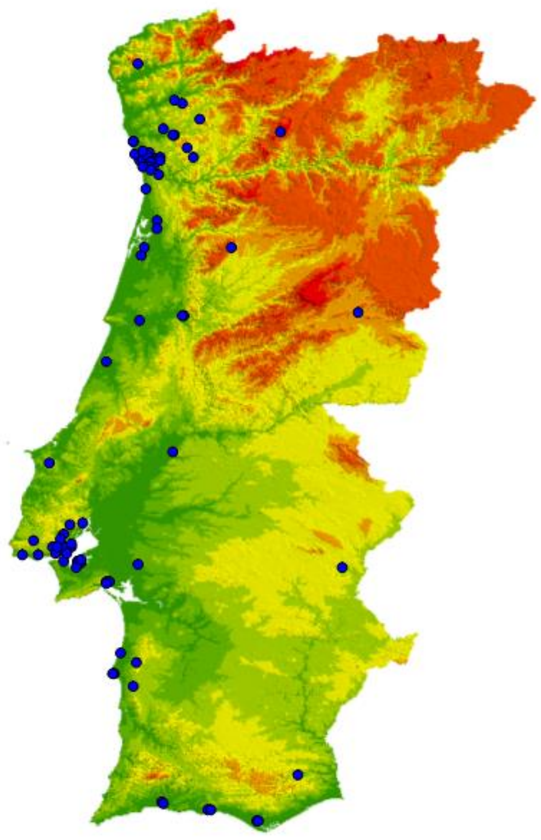
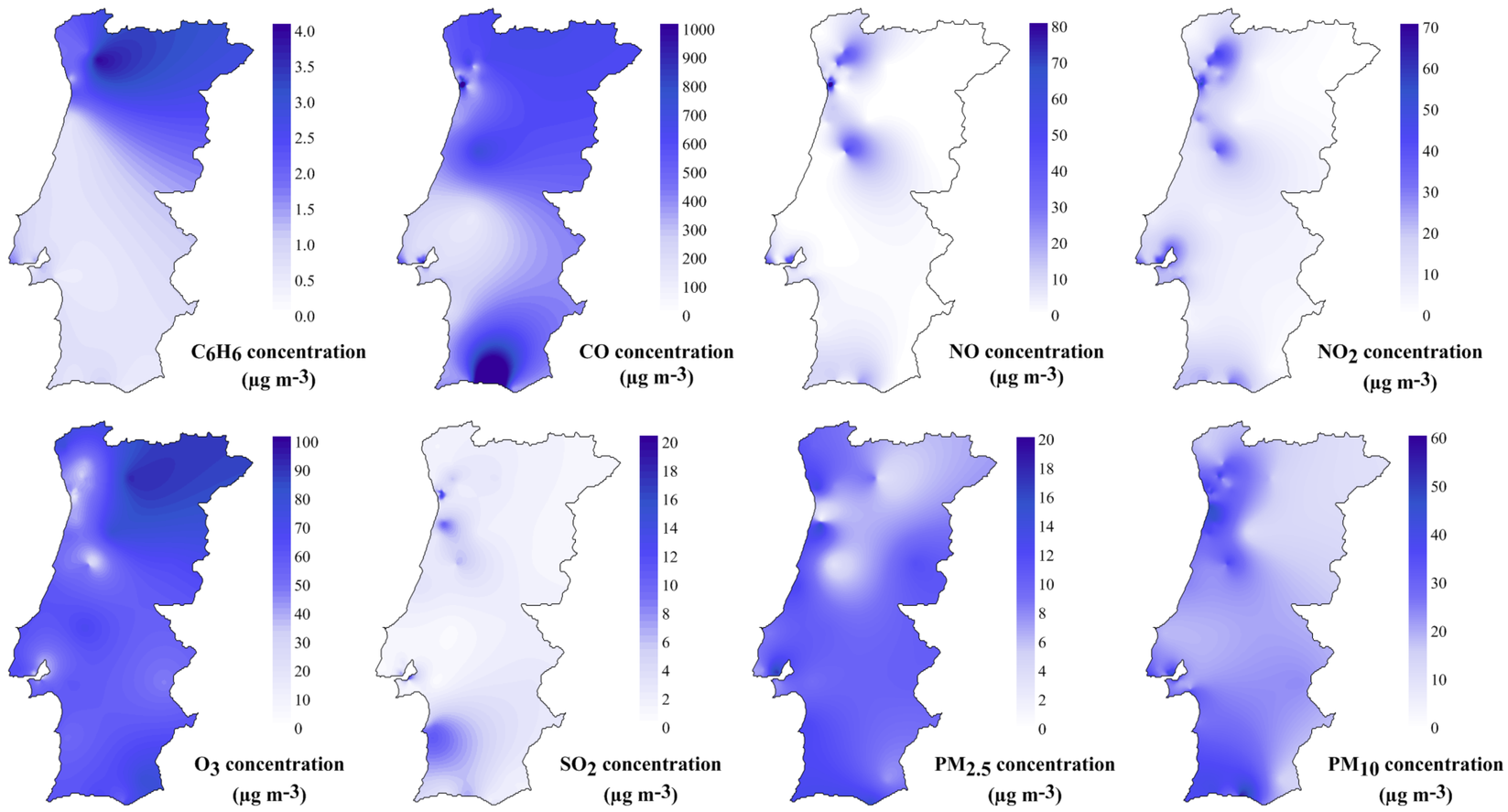
AREA OF STUDY



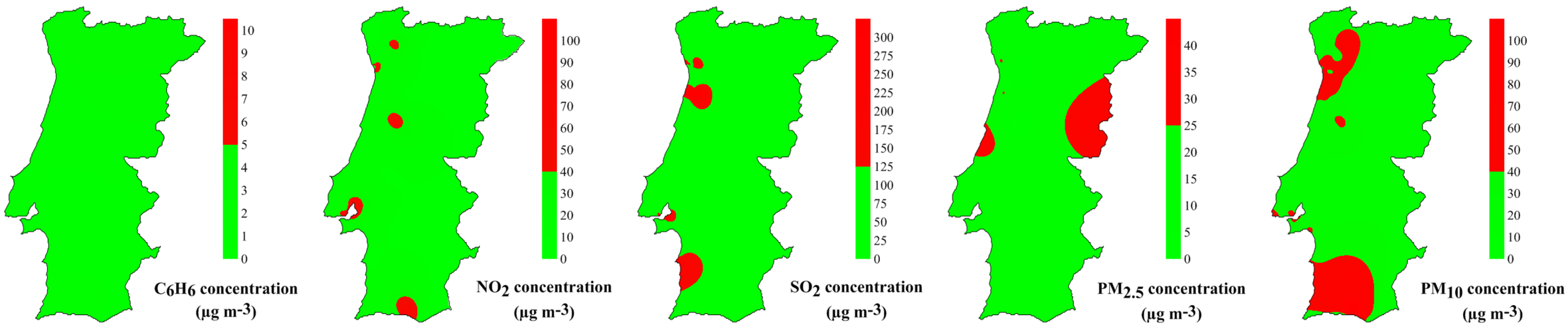
Distribution of air quality monitoring stations in continental Portugal

SPATIAL DISTRIBUTION



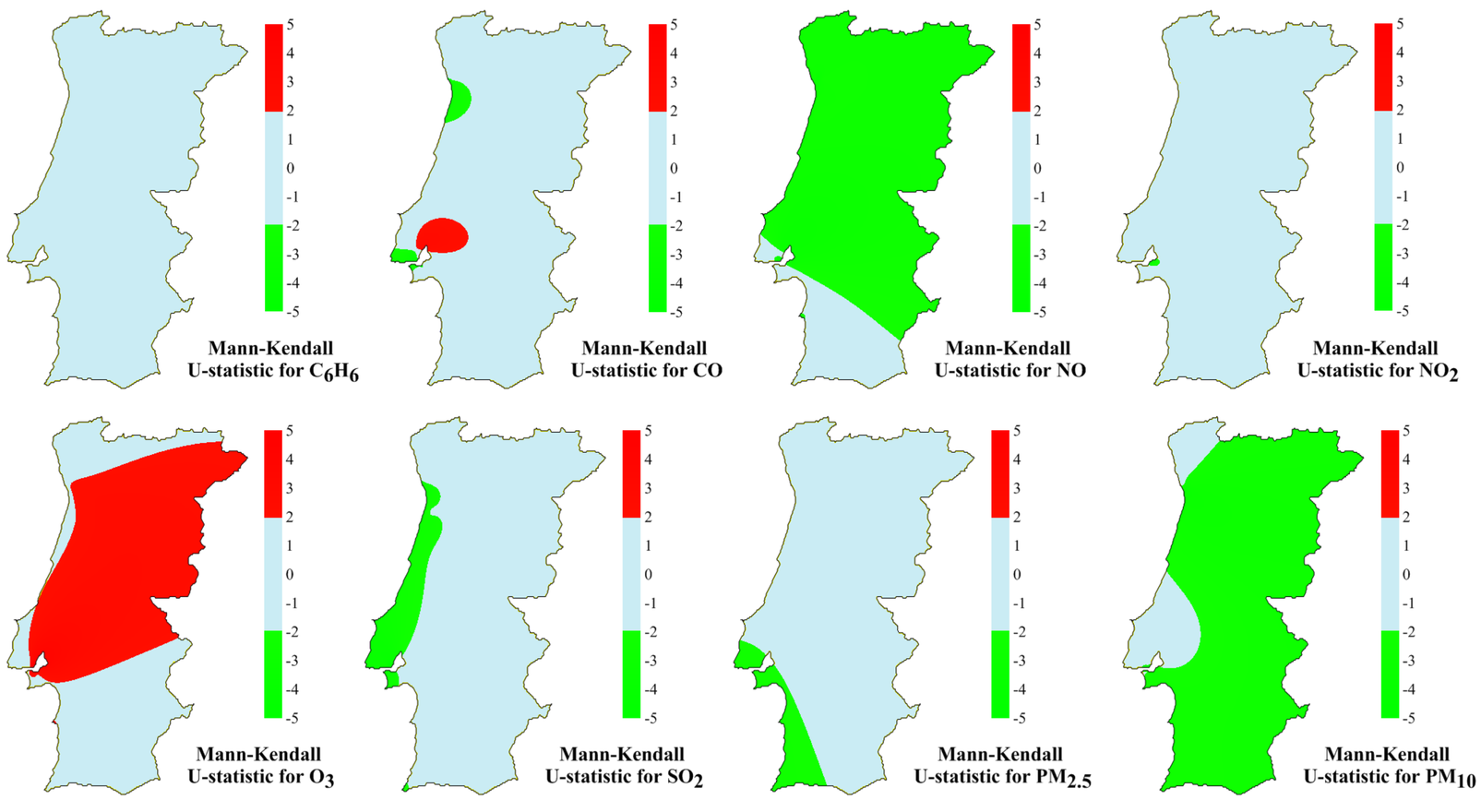
Annual averaged (1995-2013) concentration maps of C_6H_6, CO, NO, NO_2, O_3, SO_2, $PM_{2.5}$ and PM_{10}

EXCEEDANCE OF AIR QUALITY LIMIT VALUES



Portugal areas where pollutant concentrations exceeded the EU limit values set for the protection of human health during the study period (red areas)

TRENDS



Annual averages of C_6H_6, CO, NO, NO_2, O_3, SO_2, $PM_{2.5}$ and PM_{10} for the period 1995-2013 were used to assess the trend in the concentration of these pollutants by the Mann-Kendall sequential test (SQMK) for those stations with continuous data for a minimum of ten years.

The SQMK test is a non-parametric test that can be applied to non-normally distributed data with missing points. Significance of trends was evaluated at the 0.05 levels. When the values of the U-statistic become significant (greater than 1.96 for a two-tailed test at 95% level of significance), an increasing (red areas) or decreasing trend (green areas) can be observed.

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