Suplements

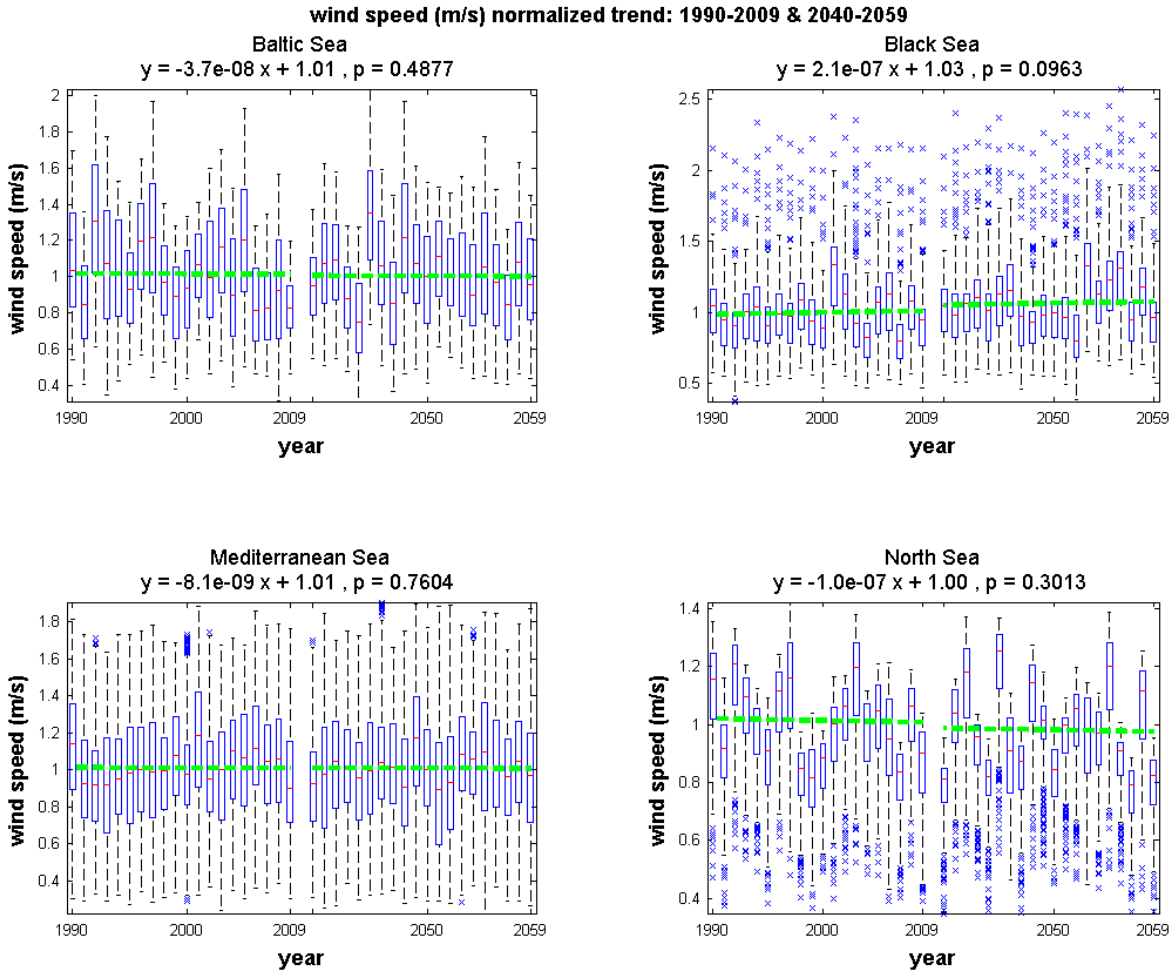


Figure S1 Annual mean win speed (m s^{-1}) normalized trend (y) over the past and future periods (x [year]), over the Baltic, Black, North and Mediterranean Seas. Only sea cells considered.

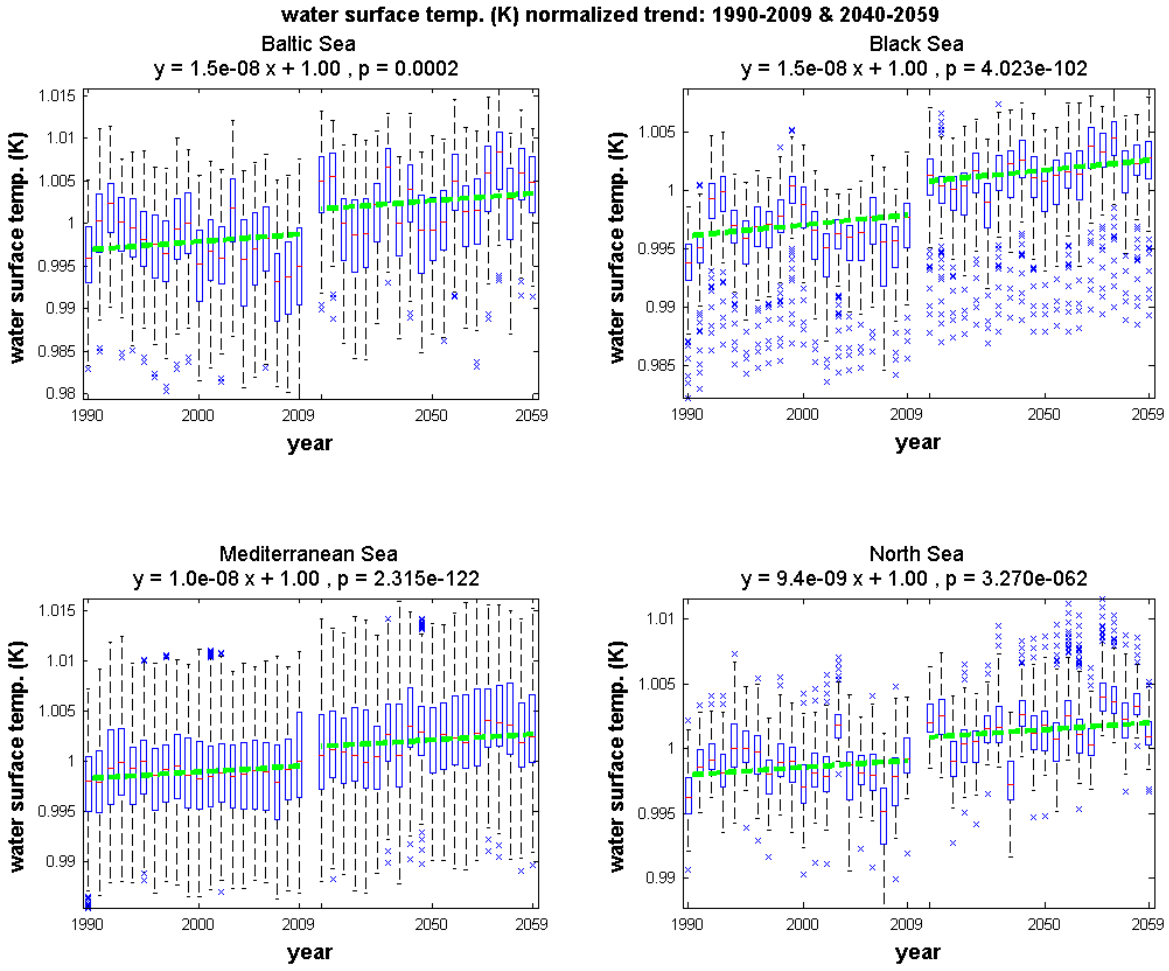


Figure S2 Annual mean water surface temperature (K) normalized trend (y) over the past and future periods (x [year]), over the Baltic, Black, North and Mediterranean Seas. Only sea cells considered.

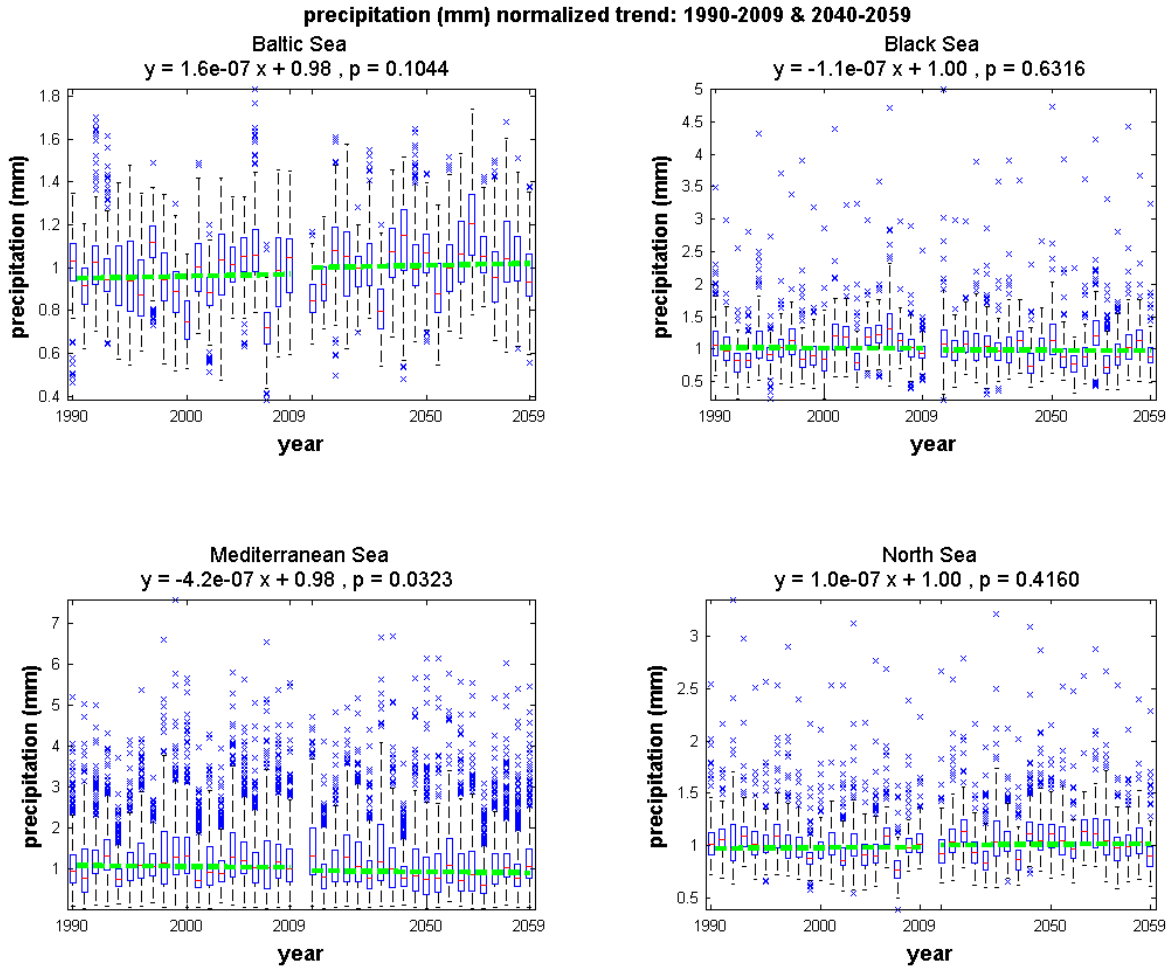


Figure S3 Annual precipitation (mm) normalized trend (y) over the past and future periods (x [year]), over the Baltic, Black, North and Mediterranean Seas. Only sea cells considered.

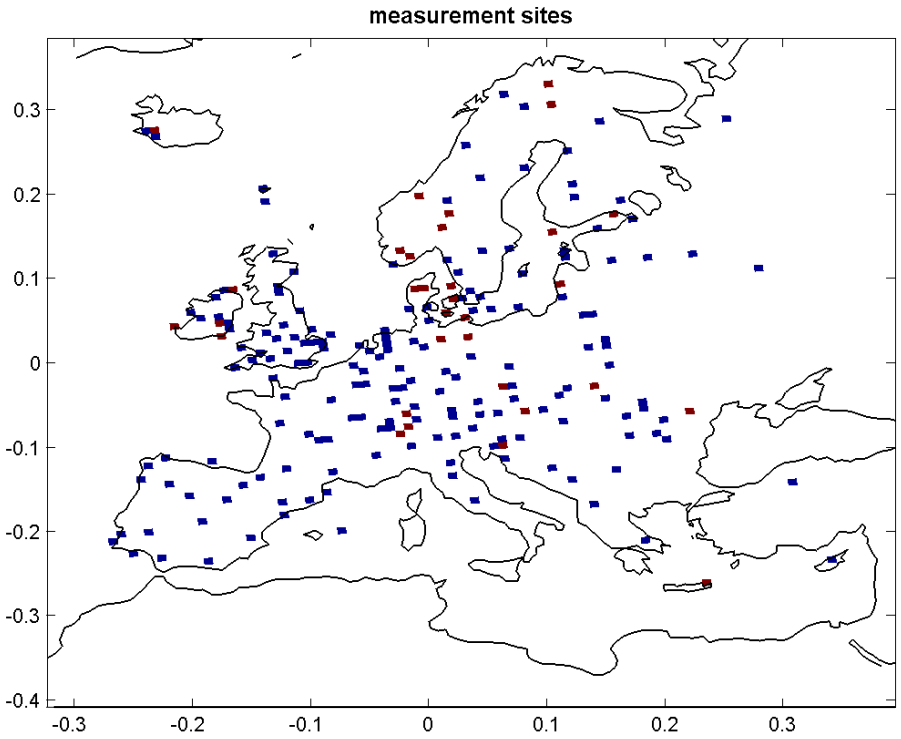


Figure S4 Location of the EMEP measurement sites measuring concentration and wet deposition of Na^+. The ones measuring both quantities are marked in red.

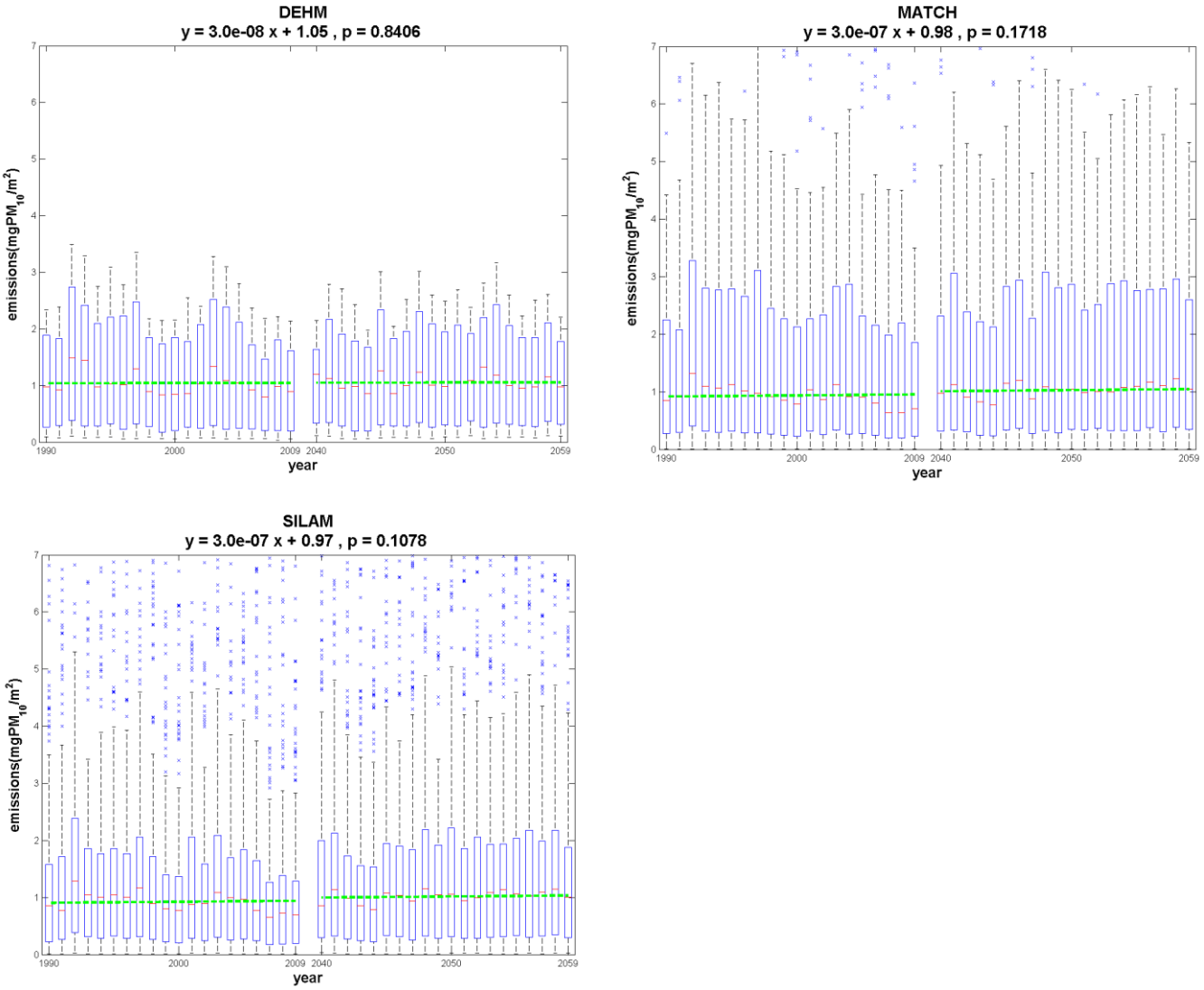
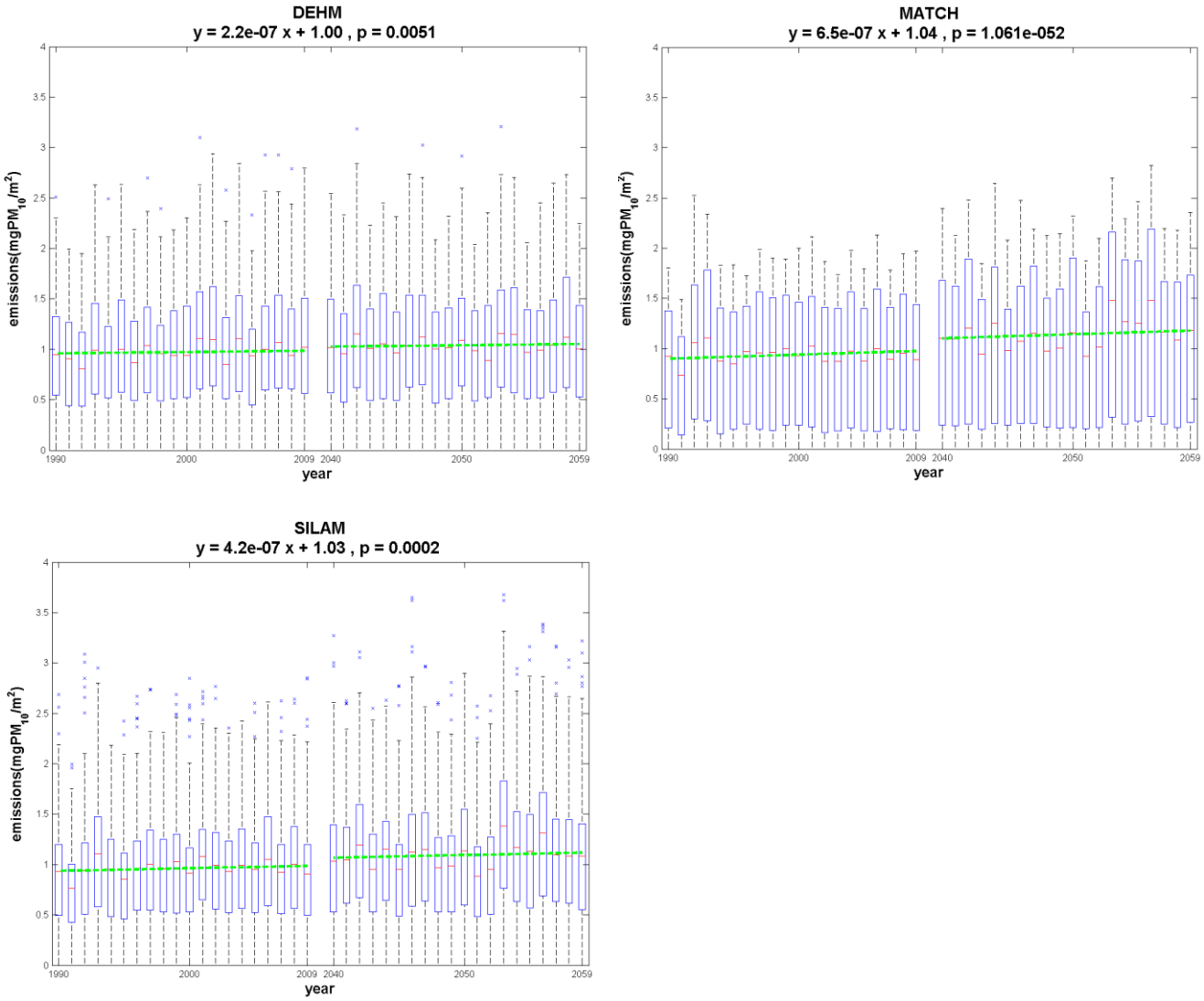


Figure S5 Baltic Sea SSA annual emission ($mgPM_{10}\ m^{-2}$) normalized trend (y) over the past and future periods (x [year]).



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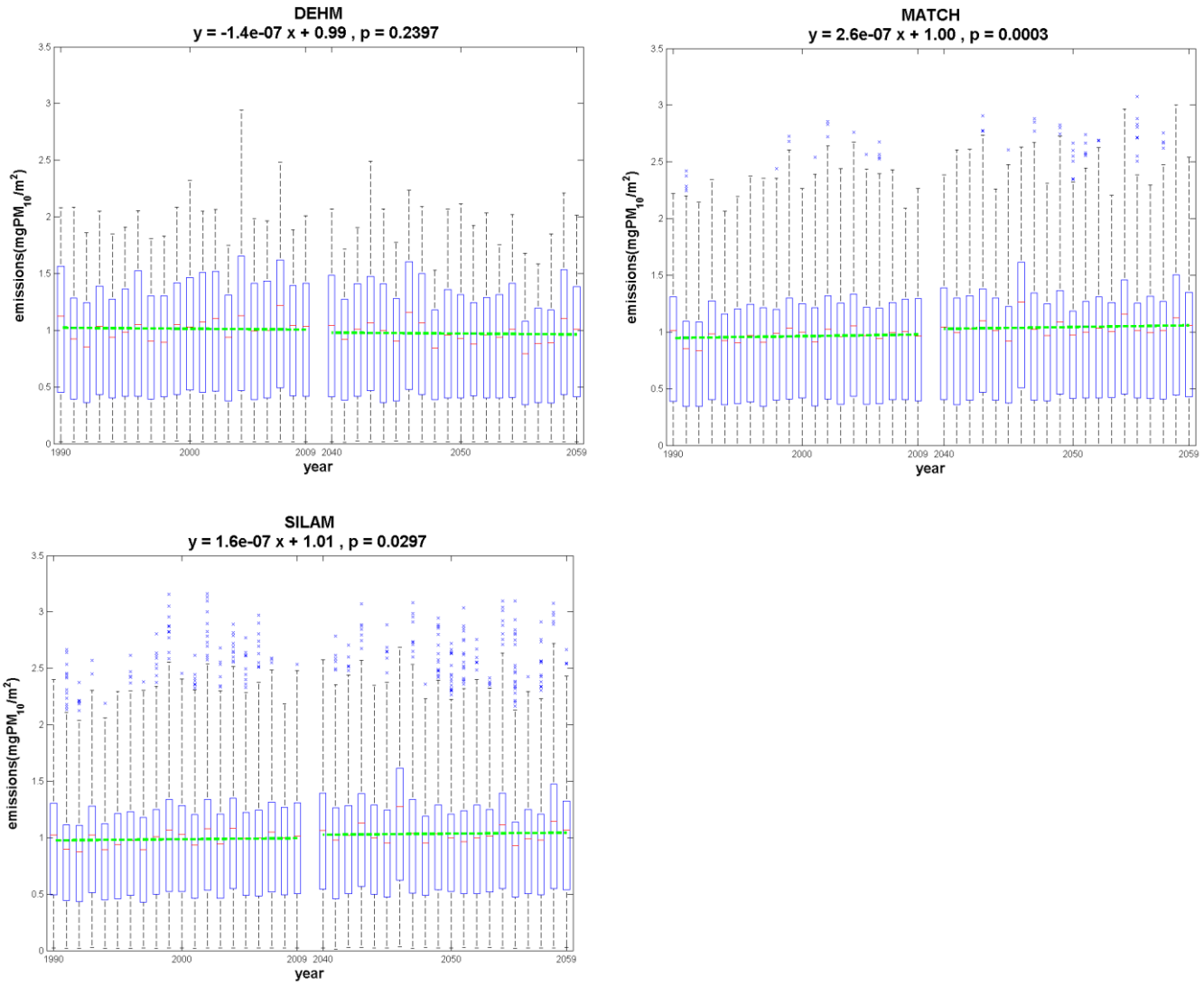
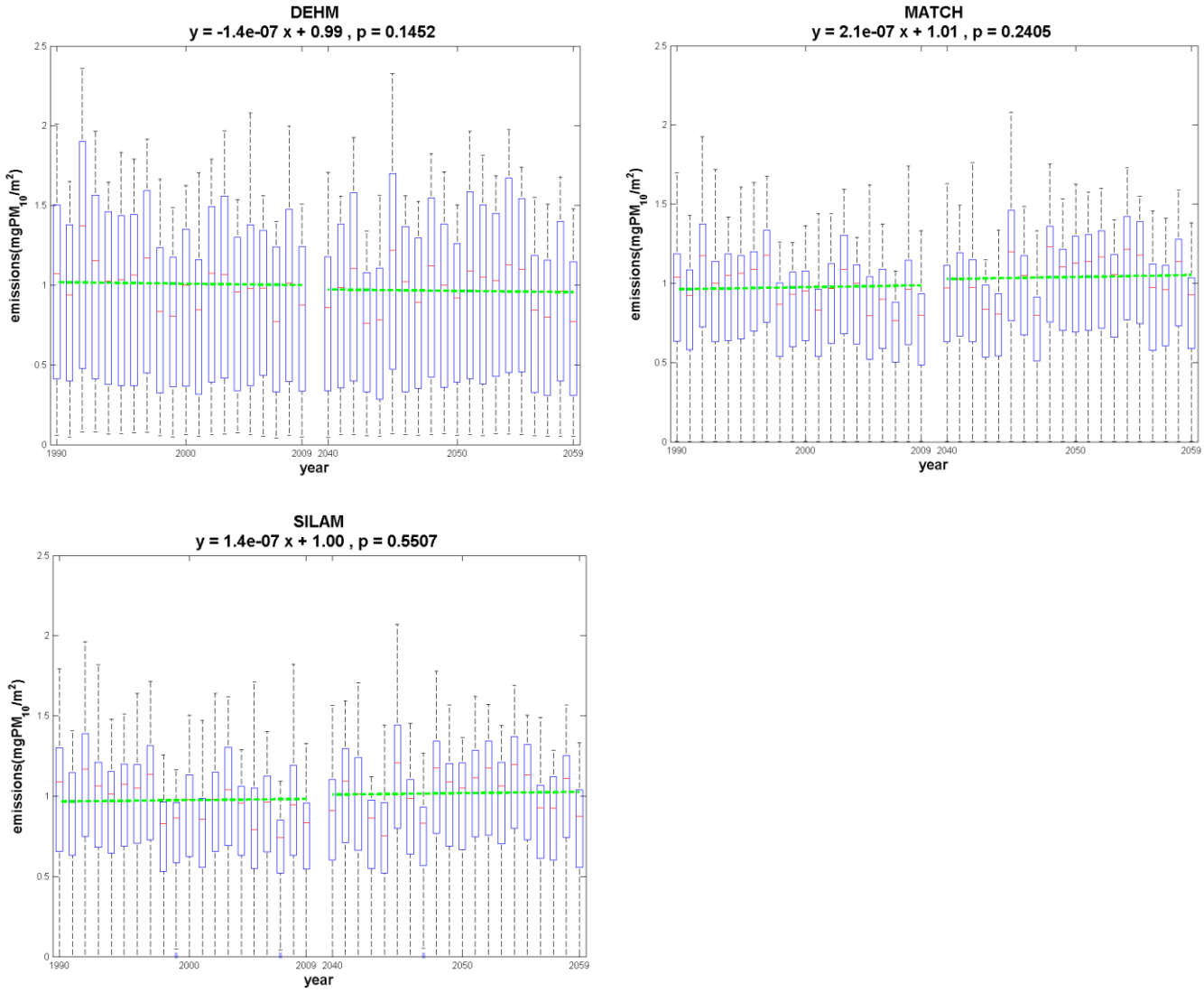
2 **Figure S6** Black Sea SSA annual emission ($mgPM_{10}$ m^{-2}) normalized trend (y) over the past
3 and future periods (x [year]).



1

2 **Figure S7** Mediterranean Sea SSA annual emission ($mgPM_{10}$ m^{-2}) normalized trend (y) over
3 the past and future periods (x [year]).



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2 **Figure S8** North Sea SSA annual emission ($mgPM_{10}$ m^{-2}) normalized trend (y) over the past
3 and future periods (x [year]).

4

5

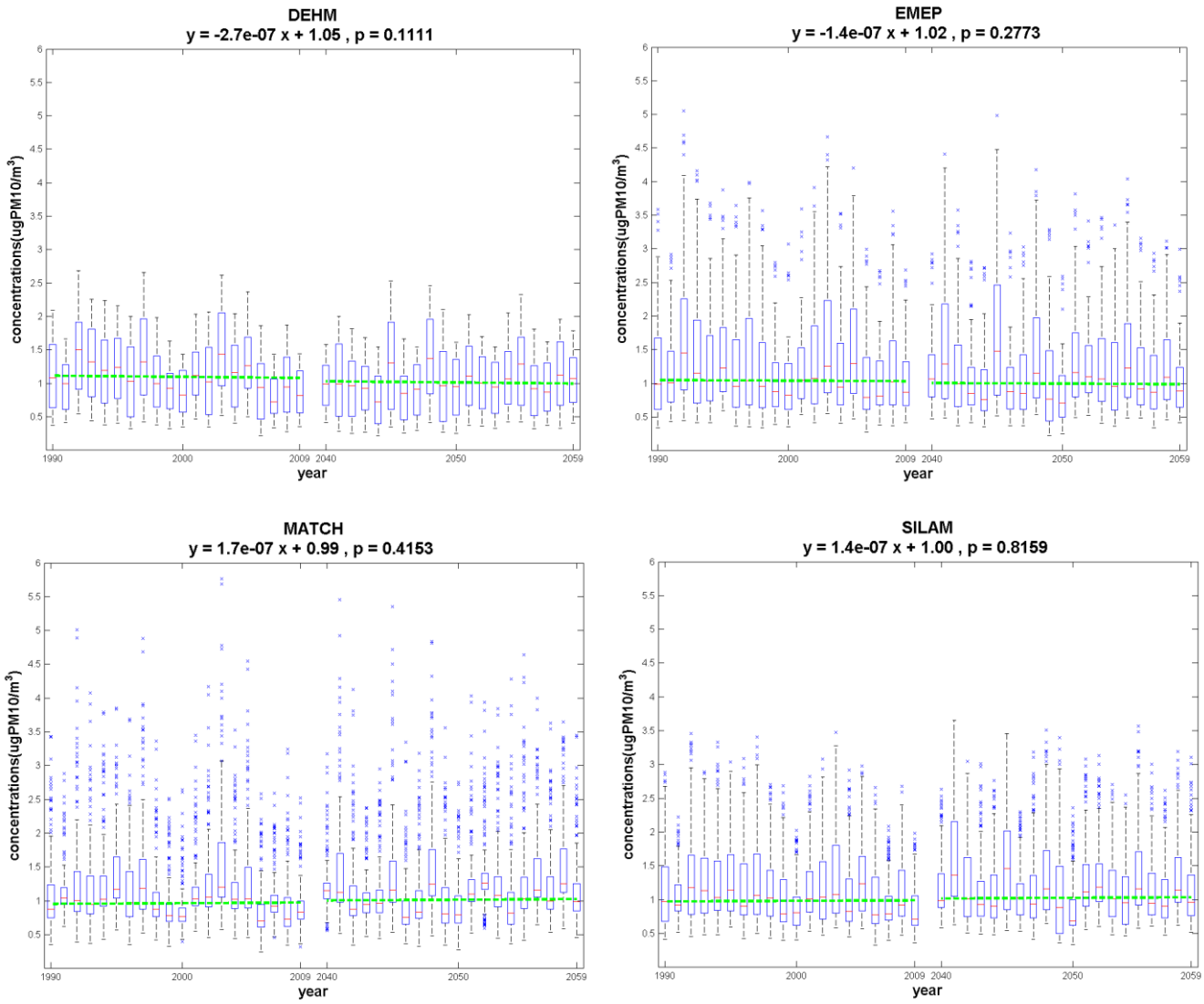
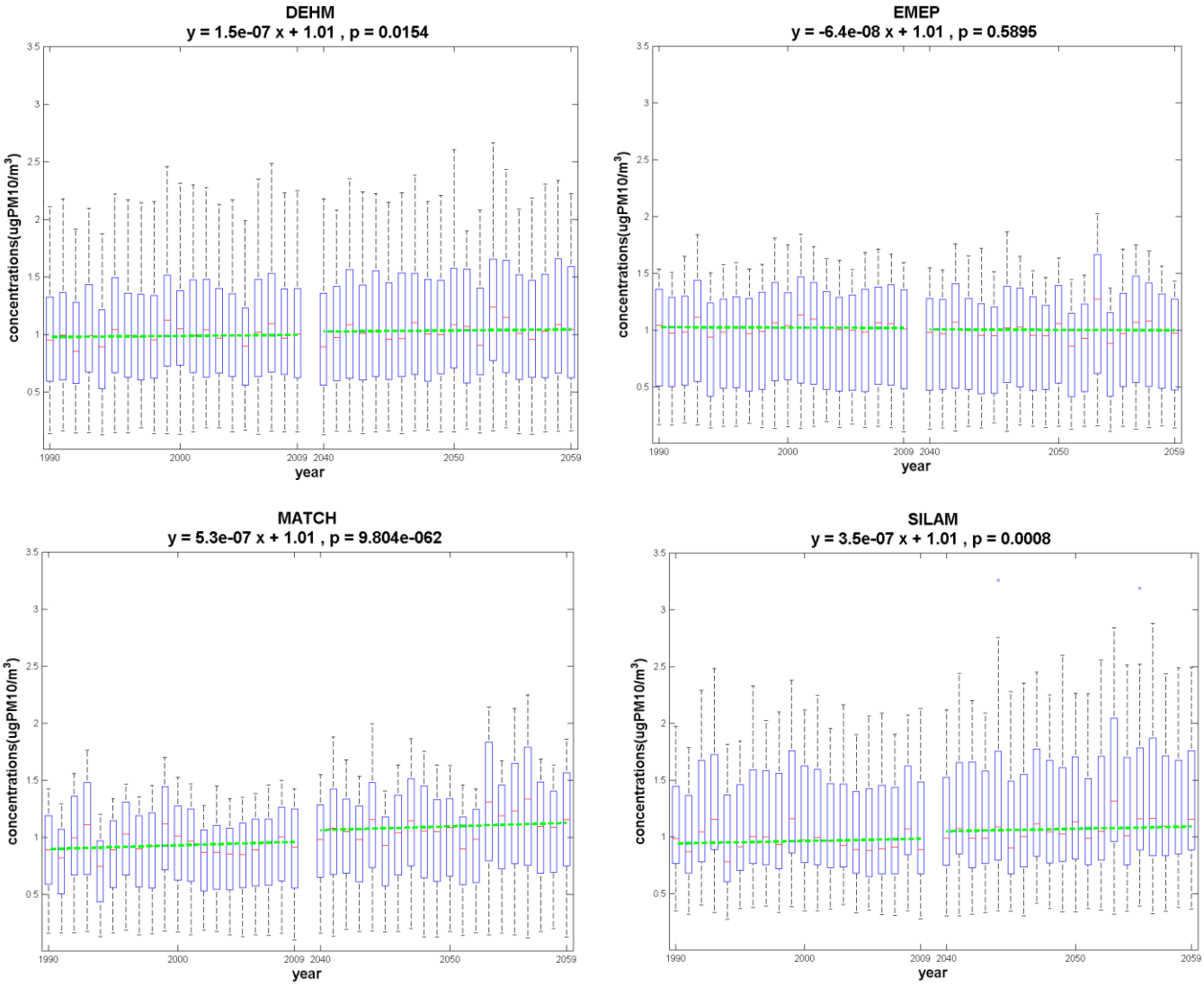


Figure S9 Baltic Sea SSA mean concentration ($\mu gPM_{10}\ m^{-3}$) normalized trend (y) over the past and future periods (x [year]).



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2 **Figure S10** Black Sea SSA mean concentration ($\mu gPM_{10}\ m^{-3}$) normalized trend (y) over the
3 past and future periods (x [year]).

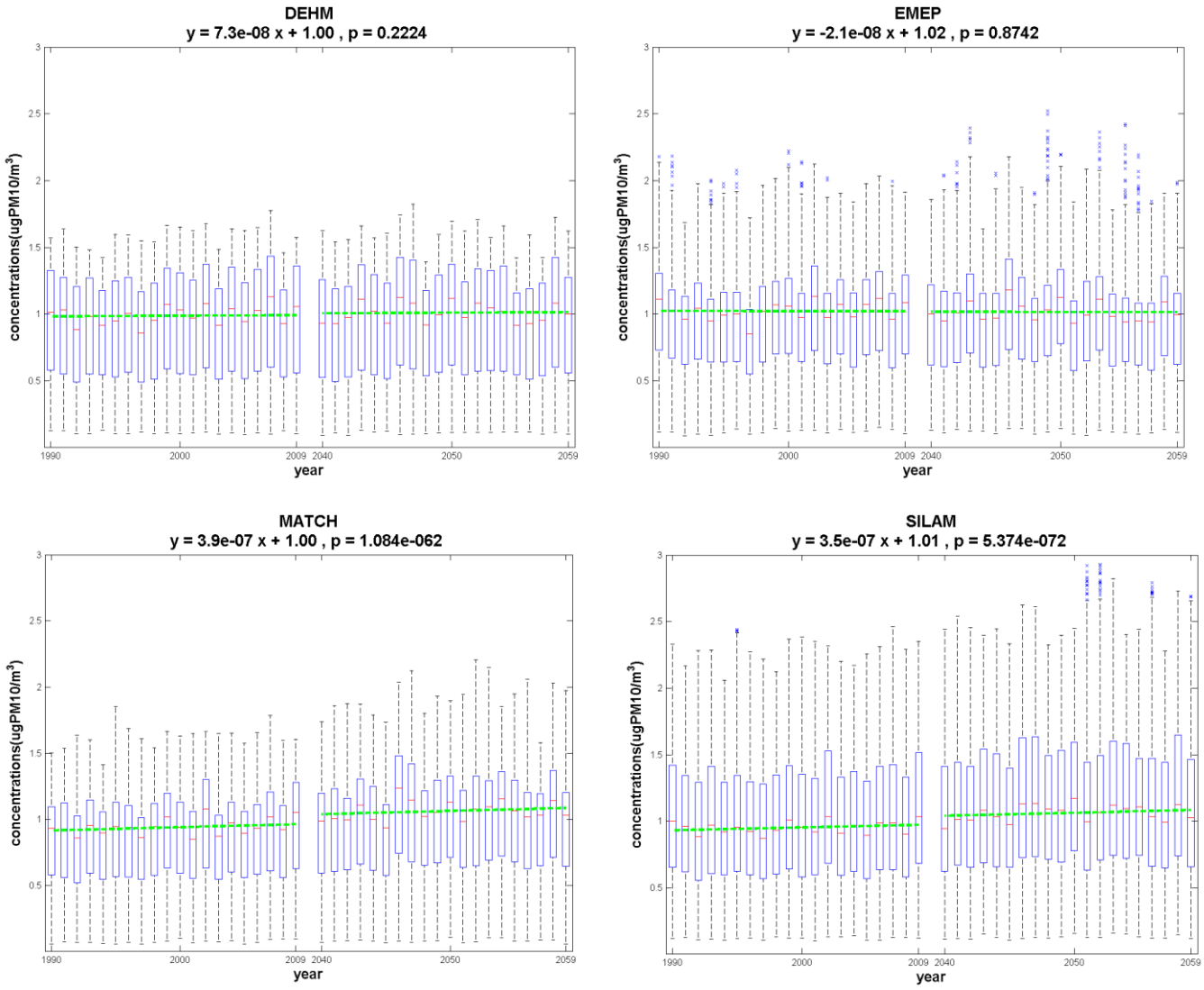


Figure S11 Mediterranean Sea SSA mean concentration ($\mu gPM_{10}/m^3$) normalized trend (y) over the past and future periods (x [year]).

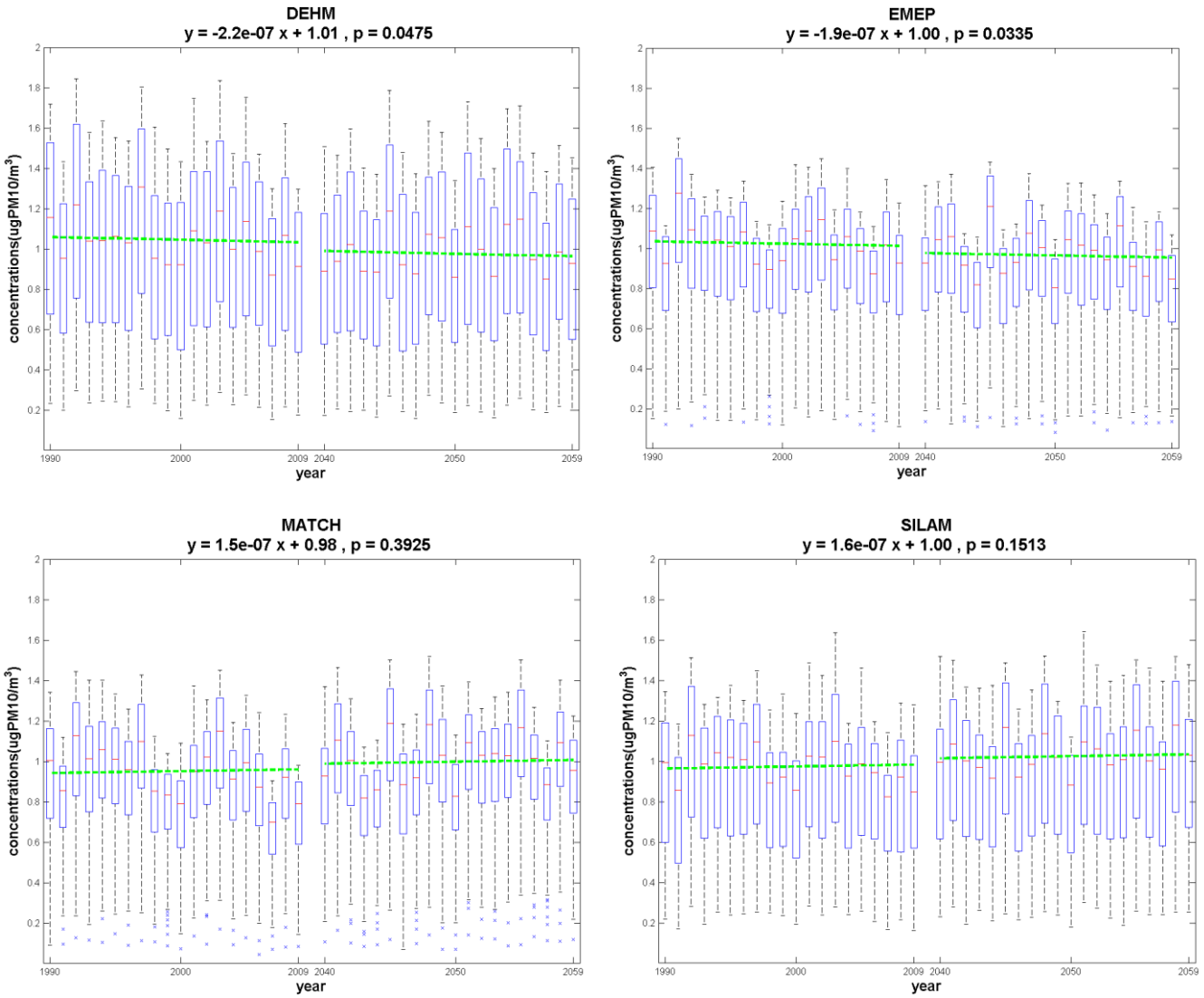


Figure S12 North Sea SSA mean concentration (µgPM_{10} m^{-3}) normalized trend (y) over the past and future periods (x [year]).

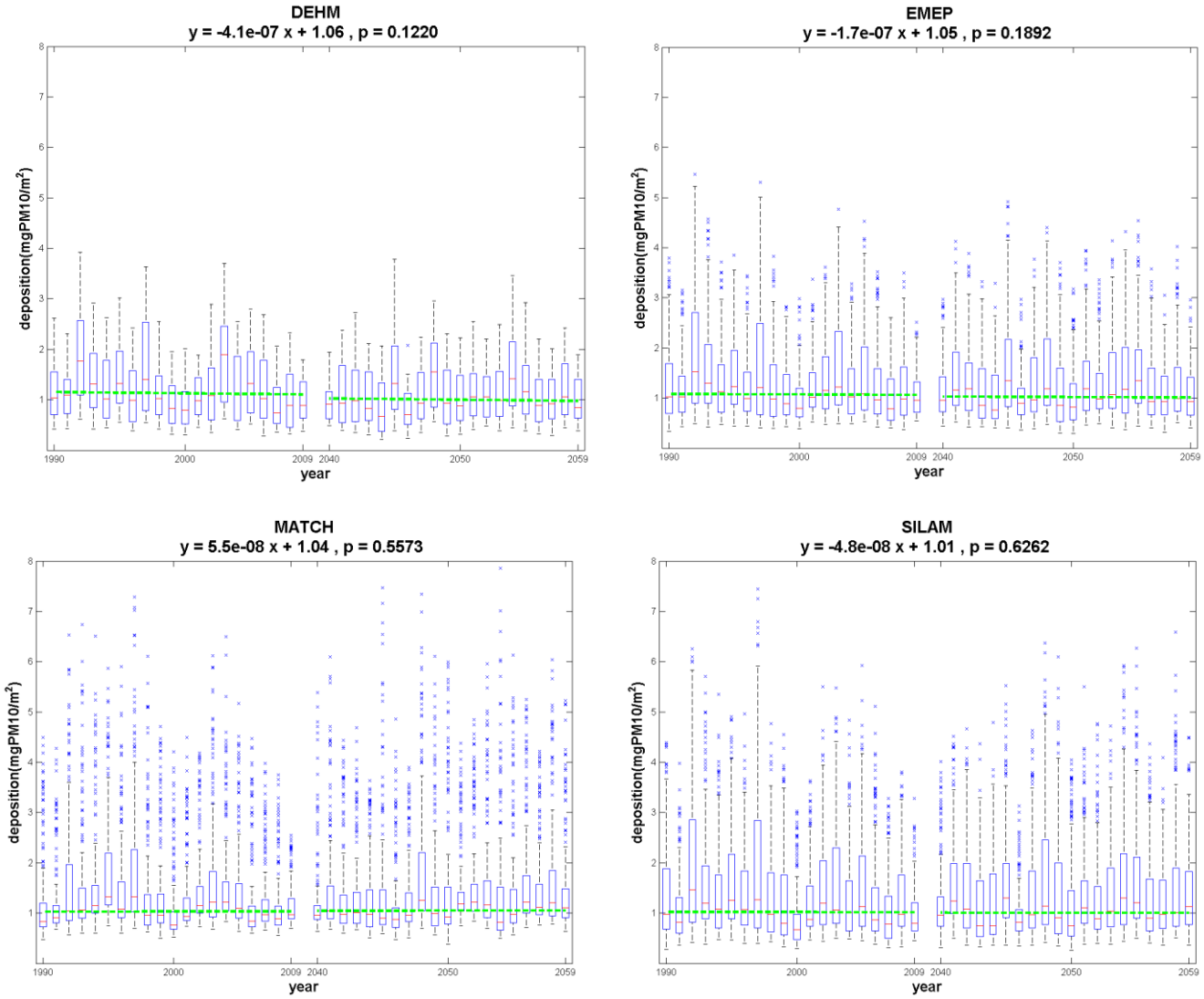
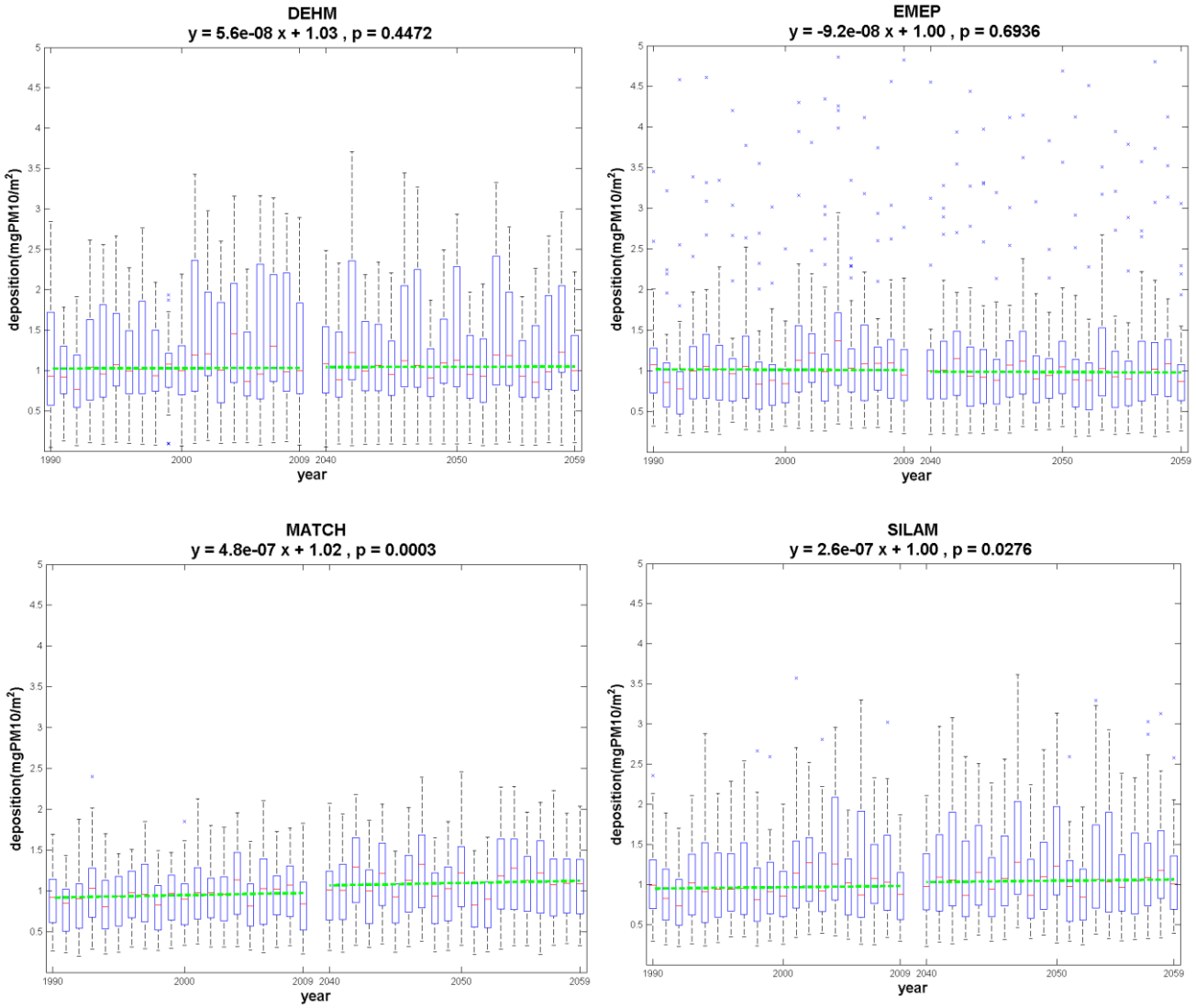


Figure S13 Baltic Sea SSA annual deposition ($mgPM_{10}$ m^{-2}) normalized trend (y) over the past and future periods (x [year]).



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2 **Figure S14** Black Sea SSA annual deposition ($mgPM_{10}$ m^{-2}) normalized trend (y) over the
3 past and future periods (x [year]).

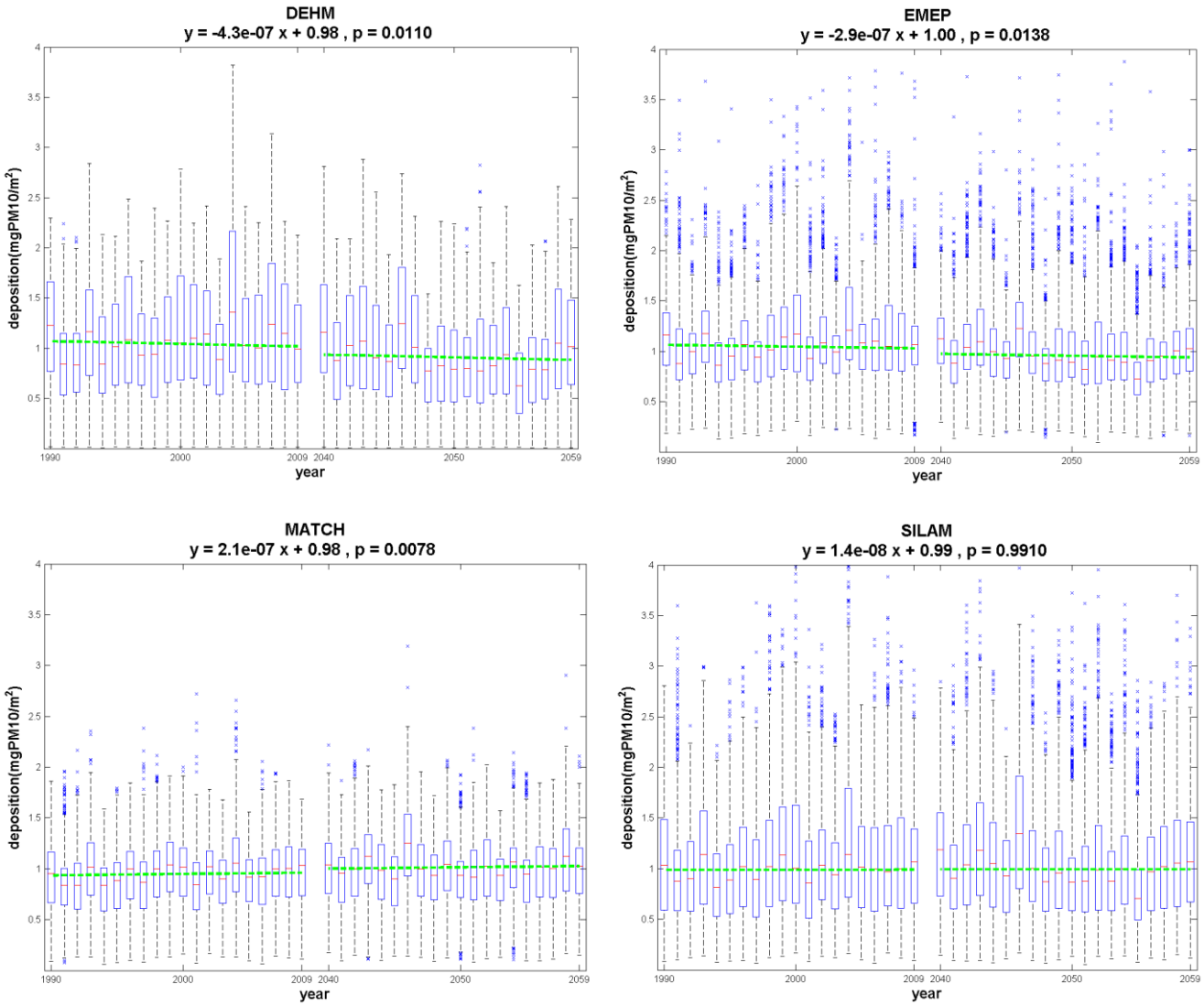

Figure S15 Mediterranean Sea SSA annual deposition ($mgPM_{10}\ m^{-2}$) normalized trend (y) over the past and future periods (x [year]).

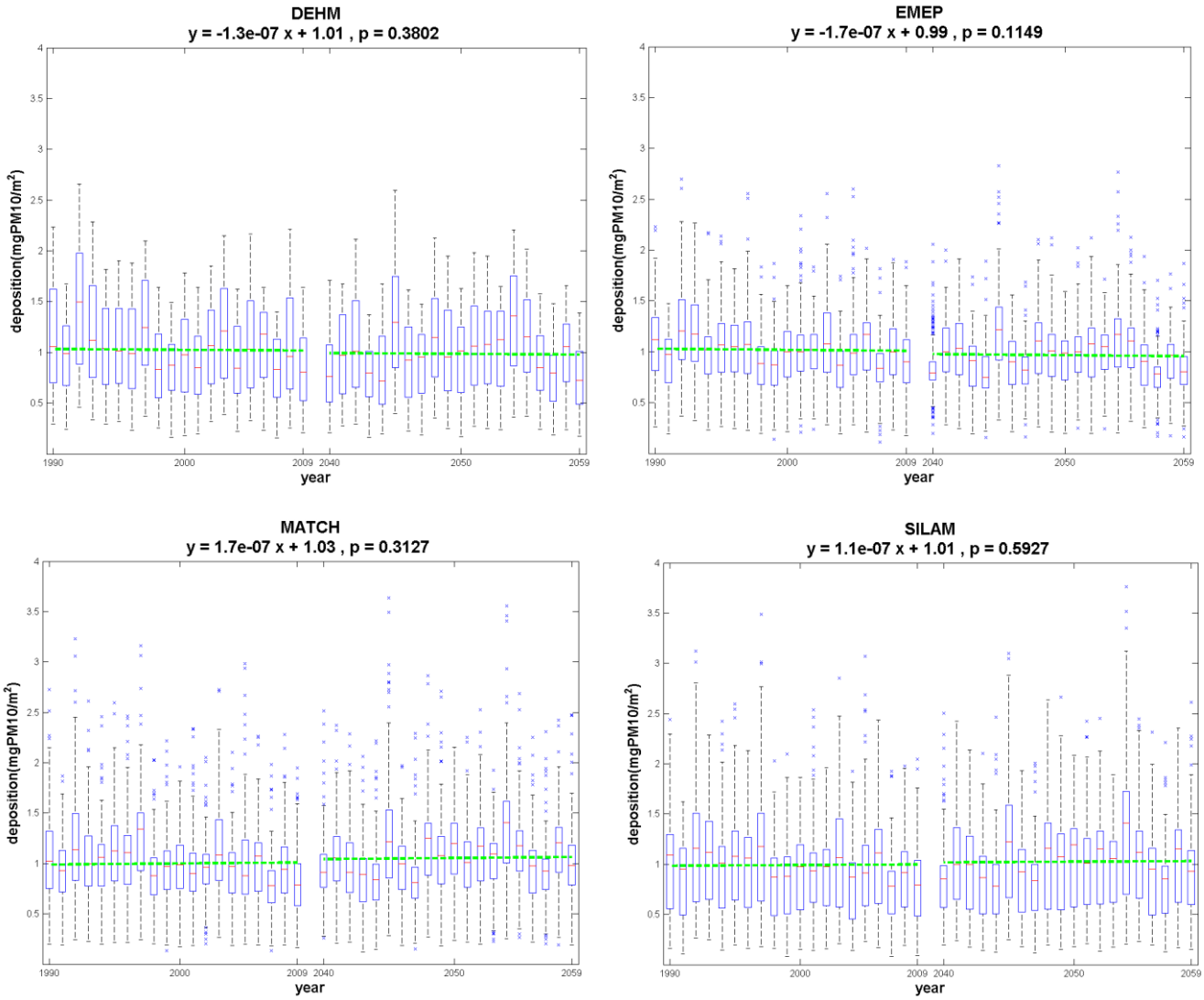

Figure S16 North Sea SSA annual deposition ($mgPM_{10}\ m^{-2}$) normalized trend (y) over the past and future periods (x [year]).