Supplementary figures for model-measurement comparison

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- 4 Figure S1. The locations of the EMEP stations that included chemically speciated measurements of
- 5 PM in 2005. The underlying map originates from Google Earth.





8 Figure S2. Annual average bias of each model for PM_{2.5} scaled with the observed mean concentration values [relative unit].
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Figure S3. Annual average bias of each model for PM_{10} scaled with the observed mean 11 12 13 concentration values [relative unit].



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16 Figure S4. Monthly average $PM_{2.5}$ concentration in Schauinsland ($\mu g/m^3$). Blue dots – observed 17 $PM_{2.5}$, colours – ensemble median of the PM components. The stacked components sum up to the

- PM_{2.5}, colours ensemble median of the PM control
 PM_{2.5} concentration of the medianComp model.
- 19
- 20 Fire-PM PM originating from wild-land fires.
- PPMr non/carbonaceous part of the anthropogenic primary PM.
 22



Figure S5. Average annual concentrations of secondary inorganic aerosols (left) and the bias of the ensemble median scaled with the observed value (right).



Figure S6. Average annual concentrations of natural aerosols (left) and the bias of the ensemble median scaled with the observed value (right).



Figure S7. Annual average concentration of the carbonaceous PM components ($\mu g/m^3$). Left – Organic aerosol, right – elemental carbon.



36 Figure S8. The ensemble median annual average concentration of the wild-land fire emitted PM_{10} .