



The effect of tropospheric oxidant concentrations and climate on future sulphate aerosol predictions

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Sulphate aerosol production is an important component of climate models. To avoid the use of online tropospheric chemistry models, the oxidants required for the oxidation of SO_2 and DMS to form sulphate aerosol are frequently given to the model in the form of seasonally-varying data. The concentrations often do not vary interannually.

Oxidants like OH and H_2O_2 are short-lived, and their concentrations depend on parameters such as temperature, water vapour, and chemical emissions, all of which are likely to vary on both short and long timescales. The resulting variations in oxidant concentrations may affect the concentrations of sulphate aerosol.

Here we investigate the effect of changes in oxidant concentrations due to changes in chemical emissions and in climate. We compare these changes to the direct influence of climate on the sulphate aerosol concentrations.

We find that the influences of both changes in oxidant concentrations and changes in climate are important in determining future concentrations of sulphate aerosol.