Air quality threshold identifications

**Challenge**

The Environment Agency granted a smelting company a number of days during which it may exceed its PM10 emissions. However, after the company set up its own post-event analysis team and completing work to further understand the conditions which lead to specific events causing thresholds to be exceeded, there were still days when PM10 levels were exceeded with no explanation. The Met Office was asked to look into the issues and propose a methodology to understand these events.

**Solution**

The Met Office conducted a local climatology analysis monitoring wind speed and direction during the periods when exceedences occurred. Once the specific factors were identified, Met Office experts re-constructed the conditions leading to the events including features such as topography and gust analysis linked to the company operations. The results were discussed with the client and as a result a warning service was set up to provide advance notice of certain weather conditions.

**Benefits**

Through the warning service the company now understands the factors which cause PM10 levels to be exceeded. Now, during certain conditions, the activities which contribute to increasing aerosol particles in the environment are either reduced or re-scheduled to periods when the risk of PM10 level is lower, saving on Environment Agency penalties and improving their standing with the local population.

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