

Saharan dust not the dominant factor in the current UK 'smog' episode

4th April 2014

Analysis of new measurements in the last 24 hours show that that Saharan dust is not the dominant factor driving reductions in regional air quality over the past few days in the south-east UK.

"It is likely that dust is making a contribution to the current air pollution: you can see dust deposited on cars after rain over the last few days. However, our analysis, and what some other people have been saying anecdotally, is that it is not all dust. A big fraction is likely to be man-made pollution," said Dr Steve Arnold, from the School of Earth & Environment at the University of Leeds.

"To reduce air pollution in the UK we need to reduce particulate emissions, especially from motor vehicles. We can reduce the severity of these episodes by reducing our own (UK) emissions, even if there are natural and manmade contributions from further afield," said Dr Dominick Spracklen.

Dr Dominick Spracklen and Dr Steve Arnold are available for interview. Institute for Climate and Atmospheric Science, School of Earth & Environment, University of Leeds

For interviews, please contact the University press office on pressoffice@leeds.ac.uk or call 0113 343 4031

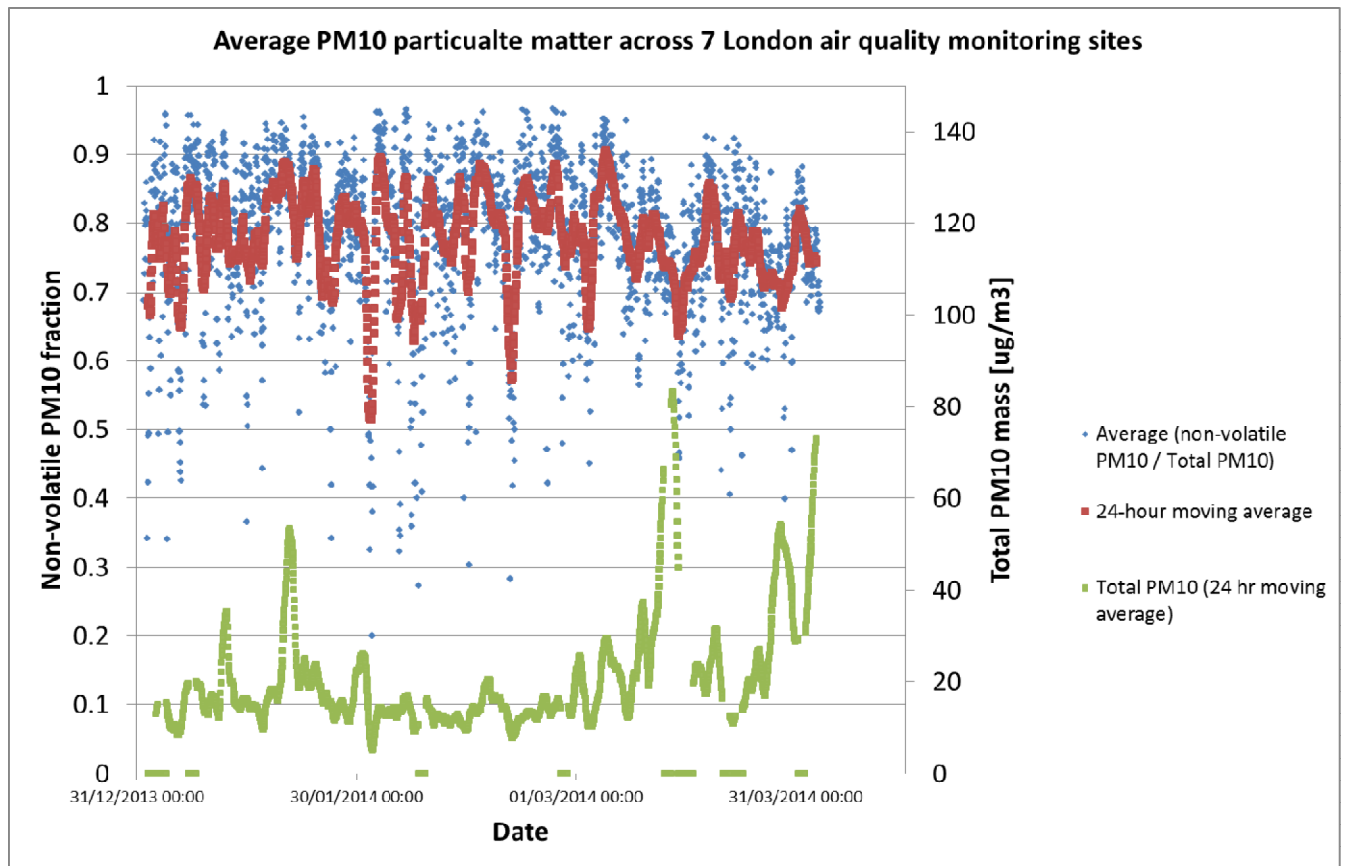
Further details

From Dr Steve Arnold & Dr Dominick Spracklen

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In light of the media interest and widespread discussion on the role of Saharan dust in the current poor air quality episode affecting much of the south and east of England, we have carried out some analysis on air quality measurements taken within greater London and made publically available via DEFRA. We have compiled PM10¹ data from 7 air quality monitoring stations² across London reporting to the DEFRA UK-Air database³ of observations. Data is available hourly, and the latest reported data is from 11:00 BST on 3rd April 2014. These measurements are able to discriminate between atmospheric particles which are "volatile" and "non-volatile". This is essentially a measure of how easily these particles can be evaporated. Mineral materials such as dust and sand have very low volatility, since they need to be heated to very high temperatures in order to break down or evaporate. In the DEFRA measurements any dust present would therefore fall into the "non-volatile" fraction of PM10.

We have compared measurements of total PM10 (green line in Figure) and the fraction of this total that is contributed by the non-volatile particles (red line in Figure). Over the recent few days (31 March to 3 April), the average non-volatile fraction of PM10 across London has not been significantly higher than on average through the rest of 2014 (pre-31 March). This suggests that during the current air quality episode, non-volatiles are not contributing a greater fraction of the total particle pollution than under average conditions throughout 2014. This implies that dust is not dominating the increase in PM10 during this recent pollution episode. We suggest that Saharan dust is not the dominant factor driving reductions in regional air quality over the past few days in the south-east UK.



¹PM10 is the total mass of small airborne particles with a diameter less than 10 micrometres present in 1 cubic metre of air, measured in μg (micrograms) per m^3 .

²Air quality monitoring stations used: Camden Kerbside, London Bloomsbury, Haringey Roadside, London Harlington, London N. Kensington, London Marylebone Road, Southwark (Old Kent Road).

³http://uk-air.defra.gov.uk/data/data_selector. We note that data for the recent time period is preliminary.