Recent UK Air Pollution Episodes
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UK National Air Quality Forecasting Seminar
14th May 2008
Today’s Presentation

- Some Examples.

- Some “non-episode” examples.

- Conclusions.

- Bonfire Night fell on a Monday this year.
- High air pollution was predicted as the weekend coincided with poor dispersion conditions.
- First opportunity to analyse Bonfire Night volatile/non-volatile PM$_{10}$ measurements from the UK monitoring networks.
The Weather Situation

Airmass back trajectories for 96 hours up to 12:00 04-11-2007
North-West England – Saturday Night

30/10/2007 to 06/11/2007
Gravimetric PM10 µg m⁻³ (20°C 1013mb)

- Blackpool Marton
- Bolton
- Bury Roadside
- Liverpool Speke
- Manchester Piccadilly
- Preston
- Salford Eccles
- Wilmot Tramwre
The Midlands – Saturday Night

Graph showing Gravimetric PM10 µg m⁻³ (20°C 1013mb) from 30/10/2007 to 06/11/2007 for various locations in the Midlands.
London – Monday Night

30/10/2007 to 06/11/2007
Gravimetric PM10 µg m⁻³ (20°C 1013mb)

- Camden Hertsede
- Haringey Roadside
- London Bexley
- London Bloomsbury
- London Harington
- London Marylebone Road
- London N. Kensington

Gravimetric PM10 µg m⁻³ (20°C 1013 mb)

November 2007
## Bonfire Night PM$_{10}$ Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Maximum daily mean</th>
<th>No of Sites Exceeding the AQS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/11/2007</td>
<td>Thursday</td>
<td>55</td>
</tr>
<tr>
<td>02/11/2007</td>
<td>Friday</td>
<td>51</td>
</tr>
<tr>
<td>03/11/2007</td>
<td>Saturday</td>
<td>82</td>
</tr>
<tr>
<td>04/11/2007</td>
<td>Sunday</td>
<td>204</td>
</tr>
<tr>
<td>05/11/2007</td>
<td>Monday</td>
<td>103</td>
</tr>
</tbody>
</table>
Mainly Non-Volatile PM$_{10}$

FDMS Non-Volatile PM10 over the Bonfire Night Weekend

Concentration, ug/m$^3$

November 1st to 7th 2007
Volatile PM$_{10}$ tracked well across Regions

Volatile PM10 from FDMS TEOMs over Bonfire Night Weekend

November 1st to 7th 2007
2. A Poor Dispersion Episode in December 2007

- During two periods – December 12\textsuperscript{th} to 14\textsuperscript{th} and 19\textsuperscript{th} to 22\textsuperscript{nd}.
Increased PM$_{10}$ and NO$_2$ Concentrations
It wasn’t this bad though!
Impact on AQS Exceedence Figures

NO2 annual mean vs number of hourly exceedences in years 2003 to 2007.
3. London Olympic Site Fire

- Minimal Impact Despite the Impressive Smoke Plume!
4. Dust Deposits Observed by the Public

- Reported by many across the UK on Sunday May 4\textsuperscript{th}, but no increases in ground-level pollution measured.

- Grangemouth Oil Refinery and Rugby Cement immediately got the blame from local residents!

- The EA and SEPA were called out to test the dust, finding it to be a mixture of sand, road dust and plant matter.

- The Met Office suggested that the dust may have originated from Spain or the Sahara, been transported in the upper atmosphere to the UK and deposited through rainfall.
5. Grangemouth SO$_2$ Pollution

- What happened to local air quality when the refinery was shut down due to a strike?
Conclusions

- Locally (UK) Driven Air Pollution Episodes can still happen and are important in PM$_{10}$ daily and NO$_2$ hourly exceedence counts.

- Seek guidance on how frequently they may occur before tackling with Actions!

- Not all visible pollution episodes may be measured at ground level, don’t jump to conclusions!

- Periods where major local pollutant emissions are switched off may provide a useful insight into their impact.
Any Questions?

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