

Air Pollution & Health:

Disentangling effects of episodes from acute & chronic exposures.

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Overview:

- Nature of episodes impacting on health
- Health effects of specific episodes
- Link to other epidemiological study designs
- Air pollution as 'grim reaper?'

Historical & wider implications:



- Health
- Economy/amenity
- Buildings/materials
- Natural ecosystems

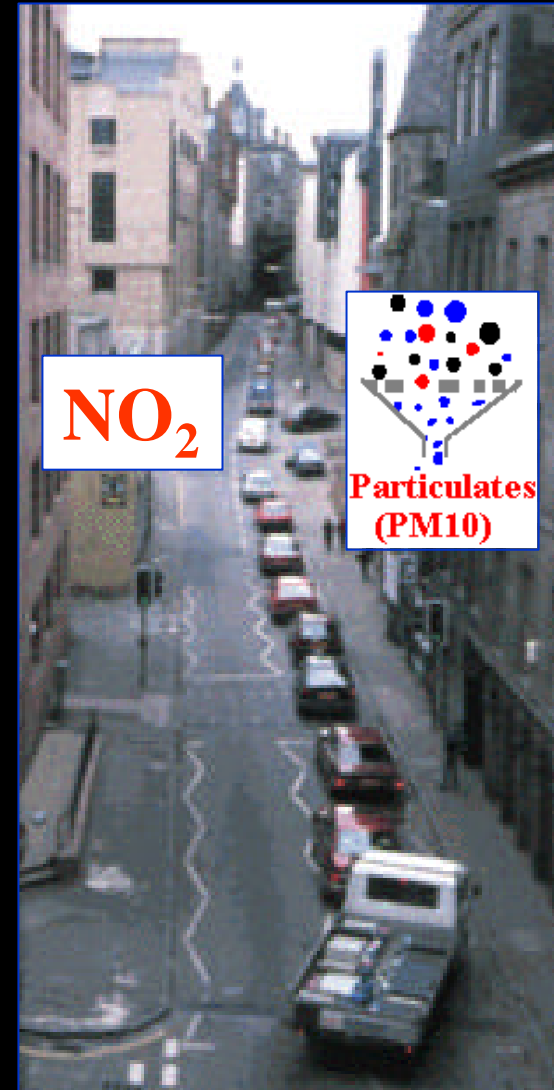
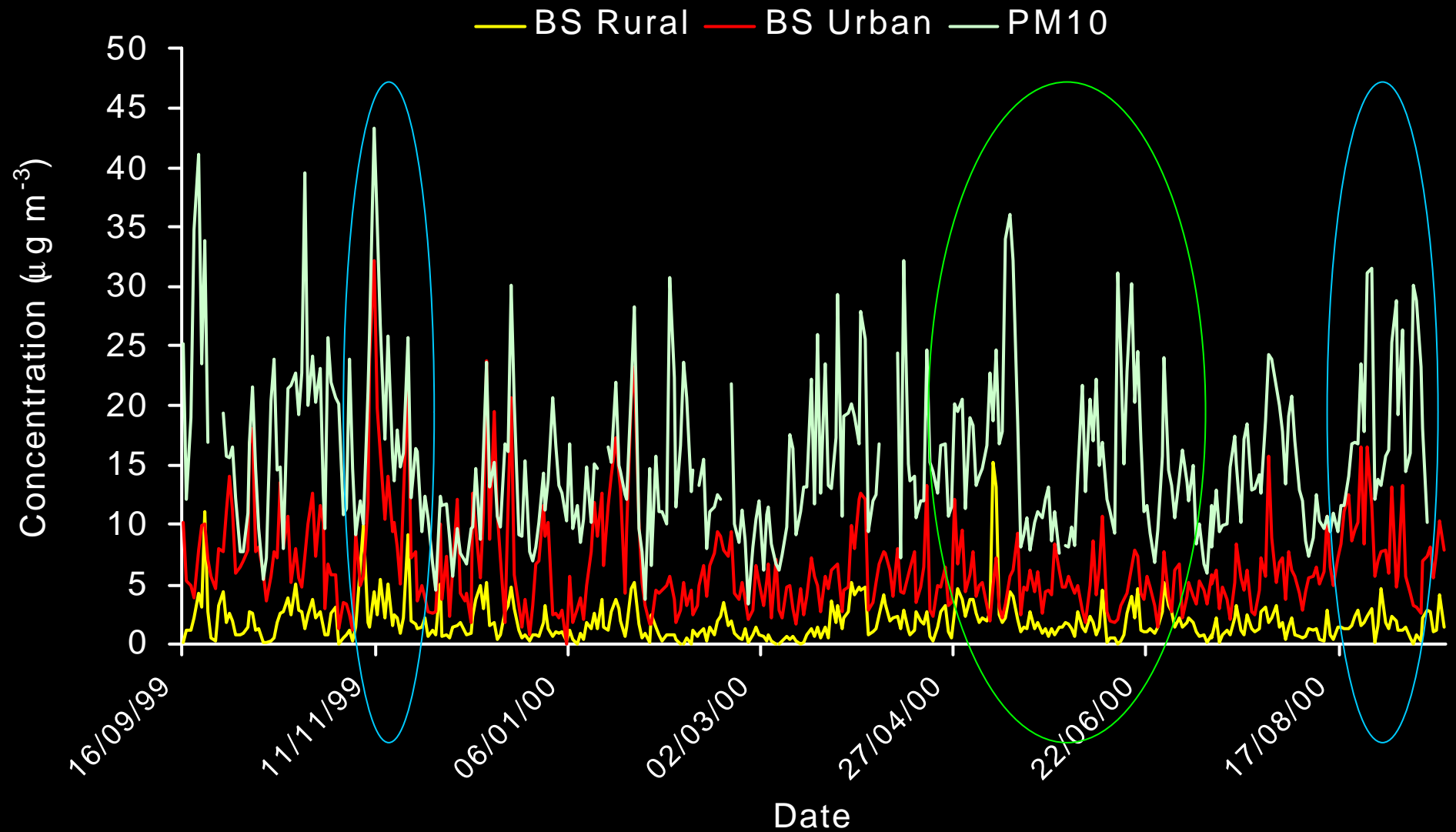
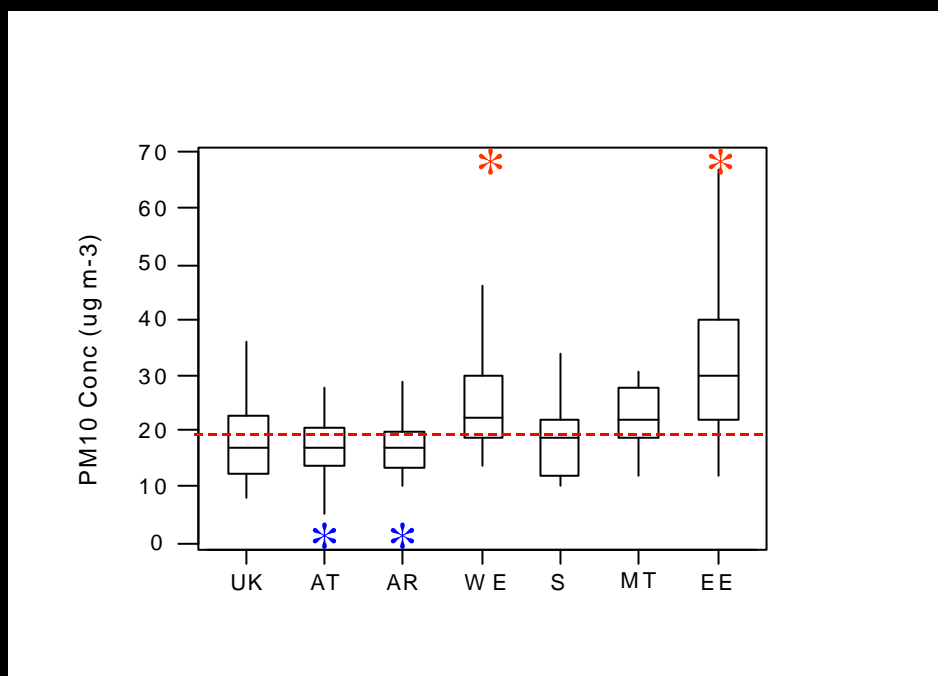


Illustration of episodes:



Long-range transport effects on particle concentrations



Epidemiological approaches:



- **OH transparencies:**
 - ◆ specific episodes
 - ◆ study design
 - ◆ harvesting

Preliminary harvesting resistant estimates:

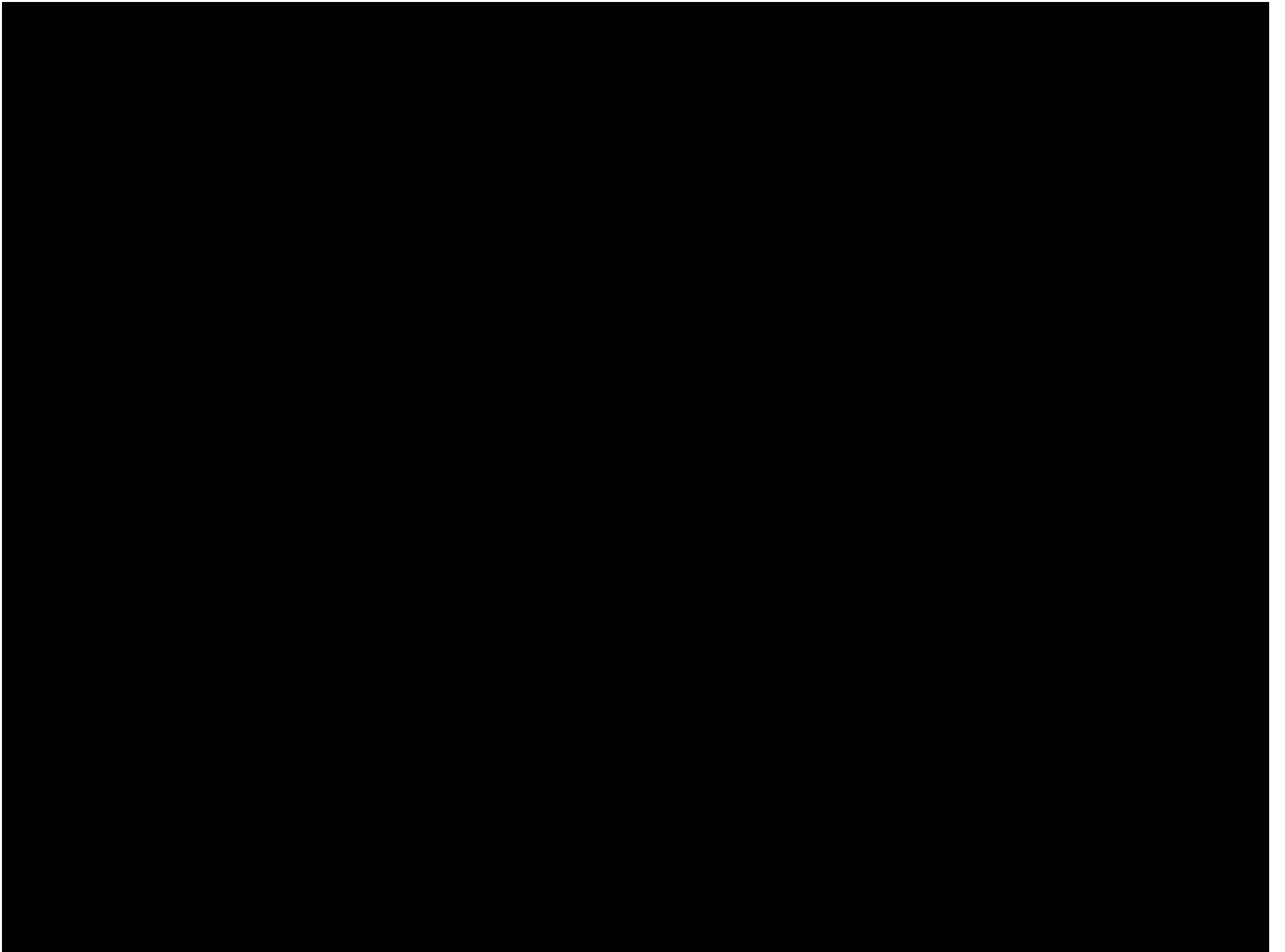
Mortality in Glasgow (82-98):

Window (days)	15	30	45	60
All cause	1.5***	2.1***	2.6***	2.9***
Respiratory	3.3***	5.9***	7.7***	9.0***
Cardiovascular	1.6**	2.2**	2.4*	2.4

% increment in mortality associated with $10 \mu\text{g m}^{-3}$ increment in BS

Conclusions

- Health impacts of episodes > earlier estimates?
 - Episodes associated with:
 - ◆ local dispersion↓ and/or
 - ◆ long range transport.
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- Particles - prime suspect?
 - 'Episodes' reduce life expectancy > several months?
 - 'Integrated' epidemiology & environmental monitoring



Some historical aspects of urban air pollution

- 1273 Law passed by Parliament to prohibit burning of soft coal in English Towns
- 1930 First causal relationships between high air pollution levels identified during winter smog episodes in Meuse Valley in Belgium (60 deaths) and
- 1948 Donora-Webster, Pennsylvania (48 deaths)
- Firket (1931) predicted that if the Meuse Valley conditions were repeated in London some 3000 people could die.
- 1952 London smog results in 4,000 premature deaths
- realisation that long range transport of pollutants from urban to remote rural areas could result in acid deposition (1970's) and climate change (1980's)
- 1990's government measures on control and monitoring strategies for urban air pollution