PARTICULATES AND HUMAN HEALTH:
Airborne particulates are categorised by their aerodynamic diameter such as \( \text{PM}_{10} \) for particles measuring 10\(\mu m\) or below or \( \text{PM}_{2.5} \) at 2.5\(\mu m\) or below (which is itself a fraction of \( \text{PM}_{10} \)) whereby the smaller the particle size the deeper they are capable of penetrating into the lung. Such a categorisation provides no reference to their chemical or biological nature leading SNIFTER (2010) to conclude that exposure to airborne particulates has ‘significant health effects [...] with [...]’ no evident safe level’ and advised that there is uncertainty about which compounds comprising \( \text{PM}_{2.5} \) give rise to toxic affects (SNIFTER, 2010).

Major incident fires release significant levels of particulates to the atmosphere and so pose a concern for human health. With severe major incidents the Environment Agency and Public Health England establish an Air Quality Cell (AQC).

ILLUSTRATIVE RESULTS –
Location of fire: Envirotyre Limited, Littleburn Industrial Estate, Langley Moor, County Durham, DH7 8HJ
Date: 22nd April 2010
(monitoring locations identified in Figure 2)

BRIEF ANALYSIS
Particulate concentrations for \( \text{PM}_{10}, \text{PM}_{2.5} \) and \( \text{PM}_1 \) were measured over 1 minute periods. Figures 3 through 7 show levels on a consecutive fifteen minute basis (Nb. Periods with less than 8 minutes worth of data have been discarded). Demonstrated in these figures is the variation of concentrations, especially evident in Figures 3, 4 and 5. Figure 8 provides a descriptive interpretation of each 15 minute period for \( \text{PM}_{10} \) from one of measurement site. Evident is the wide variation in concentrations that may occur in any one period of measurement, especially with the larger sized fraction, \( \text{PM}_{10} \).