UNIVERSITY OF Southampton
School of Humanities

ENGLISH for ENGINEERS

Below is a part of a student's report, which looks at the impact of wind conditions on baseline air quality surrounding the Carrington Power Station development in Greater Manchester. This extract comes from the Discussion Section.

Figure 3 shows that NO2 concentrations in central Manchester Piccadilly are far higher than at both Manchester South and Glazebury (particularly evident in the 2006 and 2009 data; Figures 9b and 9e in Appendix A). The concentrations follow an urban > suburban > rural relationship, with average concentrations at Glazebury 64% lower than at Manchester Piccadilly. This is likely the result of high levels of transport consequent fossil fuel combustion within central Manchester, with transport frequency and therefore emissions decreasing with distance from the city centre (Olivier et al., 1998; Warneke et al., 2007; Carslaw et al., 2011). Vehicle associated NOX is primarily emitted as NO, with secondary NO2 formed via photochemical reactions with O3 (NO + O3 → NO2 + O2) (Brunekreef and Holgate, 2002; Carslaw and Beevers, 2004). Although often not considered, primary NO2 is also emitted by vehicles, especially by diesel engines, and therefore will too make a significant contribution to the observed NO2 levels (Carslaw and Beevers, 2004). As indoor air qualities have a positive correlation with outdoor pollutant concentrations, it can also be expected that domestic NO2 concentrations will follow this urban > suburban > rural pattern, impacting proportionately upon health (Lawrence et al., 2005). Consequently central Manchester residents can be expected toespecially during the winter months; the impacts of NO2 pollution on health are discussed in section4.3.

Figure 3 also evidences that NO2 concentrations dip during the summer; concentrations on average increased 210% from August to December. This is particularly marked within the 2010 data (Figure 9f in Appendix A), where there is an almost continual trend of decreasing NO2 concentrations toward the summer and vice versa at all sites. This follows the trend that NO2 concentrations almost exclusively demonstrate strong seasonal fluctuations (Hargreaves et al., 2000). However Hargreaves et al. (2000) also noted that urban sites close to roads display almost no seasonal variation due to the almost constant source of emissions; this however is not validated by the Manchester Piccadilly data. The reason for this may be that the sampling location at Manchester Piccadilly is 200m from the nearest road (see Figure 2a), and therefore cannot be considered to be in close proximity to a road and its associated continual emissions.

Comment [IaL1]: 'Shows that' is used to give the main finding from Figure 3. This is given at the start of the paragraph.

Comment [IaL2]: More information is given about the main finding that was stated in the previous sentence. This is already beginning to move away from what readers might immediately observe themselves.

Comment [IaL3]: The student offers an explanation for the observed trend. She also uses the appropriate cautious language, "likely", to make her point defendable.

Comment [IaL4]: The student indicates that her findings and analysis are supported by wider research. This strengthens her claim.

Comment [IaL5]: The student shows awareness of what is and is not included in wider research. The student makes this statement quickly, and then moves on to focus on her point that NO2 is important. She then supports this claim with evidence from the research community.

Comment [IaL6]: The student moves on to talk about how these findings apply to indoors as well as outdoors.

Comment [IaL7]: The paragraph ends with a more general comment again. It also mentions "winter months", which sets the topic for discussion in the next paragraph. This helps the overall flow of the report.

Comment [IaL8]: The student starts the paragraph with a main finding.

Comment [IaL9]: The student identifies an point where her findings differ from wider research. In the following sentence, she offers an explanation for this. It is important to not only show where your findings are backed up by other research, but also where they differ (and to offer explanations for this).

For more information on analysing data, see:

Swales, J and Feak, C, 2009, *Academic Writing for Graduate Students*. Ann Arbor: University of Michigan Press.

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