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TRENDS IN GROUND-LEVEL OZONE CONCENTRATION AND THEIR IMPLICATIONS FOR THE UK

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A number of important changes in the pollution climate of the UK have been identified in recent years. Among these is evidence of an increase in annual mean concentrations, of between 0.1 and 0.3 ppb yr^-1. This is consistent with the impact of global increases in precursor (NOx and VOC) emissions on background ozone concentrations. Results from a compilation of global ozone models predict a steady rise in background ozone concentrations over the northern hemisphere (1 to 16 ppb by 2050 for the UK). These data have been used, along with current ozone measurements to simulate changes in the UK ozone climate during the next few decades. The method used predicts hourly ozone concentrations at rural monitoring sites and maps of critical levels at a fine scale (1 km x 1 km). The maps are then used to assess the possible effects of ozone on human health and vegetation. At present, the effect of ozone on human health is generally restricted to sensitive individuals, although increases in hospital admissions for respiratory illnesses are observed during episodes of high ozone. The results of this analysis show that people will be exposed to larger ozone concentrations more often and so sensitive individuals may have to restrict time spent outdoors. Ozone has significant adverse impacts on vegetation in the UK at current levels and the results indicate that vegetation will be exposed to higher ozone concentrations, for more of the time in the future, emphasising that vegetation is at particular risk.