

PM₁₀ (annual mean)

For both the community and RWR receptors, the annual mean PM₁₀ concentration from GRAL was added to a mapped background PM₁₀ concentration to give the total annual mean concentration.

For both types of receptor the annual mean PM₁₀ concentration during the modelled year was compared with the corresponding air quality criterion.

PM₁₀ (maximum 24-hour mean)

For community receptors a contemporaneous approach was used. The 24-hour mean PM₁₀ concentration from GRAL was added to the corresponding 24-hour mean background PM₁₀ concentration for every day of the year. The maximum 24-hour PM₁₀ concentration for the year was then determined.

For RWR receptors the maximum 24-hour mean PM₁₀ concentration for the year was added to the 98th percentile 24-hour mean background PM₁₀ concentration from the synthetic profile (39.3 µg/m³). Again, the implications of this simplified approach were investigated by comparing the statistical method using the 98th percentile background PM₁₀ with the contemporaneous method for the 31 community receptors (Figure 8-21). Whilst the level of agreement was lower than that for NO₂, the statistical method gave maximum 24-hour PM₁₀ concentrations that were, on average close to those determined using the contemporaneous method, and within around ±5 µg/m³ overall. The statistical method also resulted in proportionally more values above the 24-hour criterion (50 µg/m³) than the contemporaneous method, which indicates that it is probably overestimating the number of exceedances for the RWR receptors. However, the results of the statistical method are clearly very dependent on the assumption concerning the background concentration, and this highlights the difficulties with the assessment of particulate matter impacts for road transport projects.

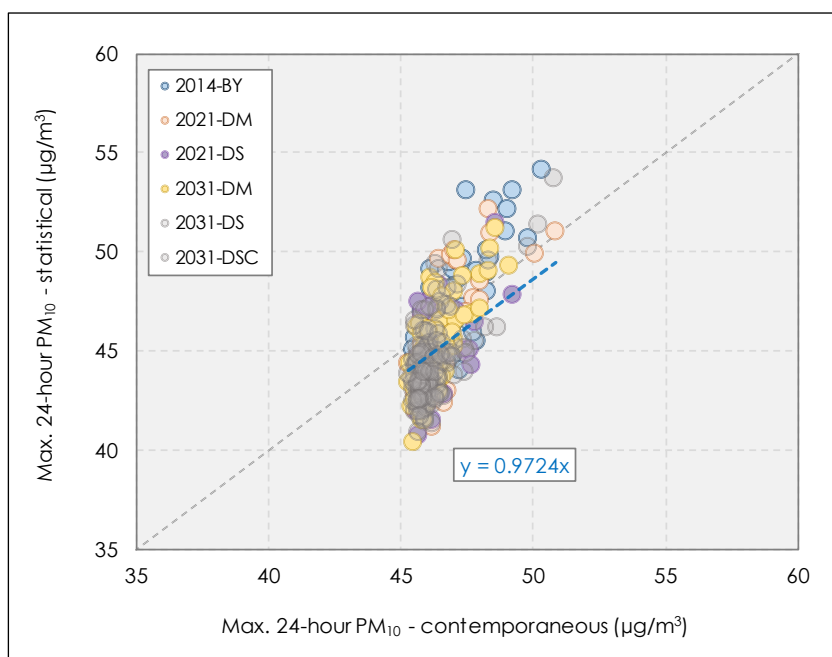


Figure 8-21 Comparison between statistical and contemporaneous approaches for calculating maximum one-hour PM₁₀ at community receptors (note that axes do not start at zero)

For both types of receptor the maximum 24-hour PM₁₀ concentration during the modelled year was compared with the corresponding air quality criterion.