

General comments

1. This manuscript presents some interesting results, but the paper itself is currently written insufficiently well to be published in ACP. Examples of this include:
 - a. References to tables in the text without any explanation of what is in the table e.g. P3 L31 'The traffic data is summarized in Table 1'. A good quality paper would say what traffic data are summarised, and comment on the values in the table.
References to all tables and figures should be reviewed.
 - b. The paper takes a standard format 'Intro, data, models etc'. However, information is not always provided in the right sections. e.g. some details of the modelling parameters are given in the introduction, and some more general text is given later in the paper, when it should come earlier. Some examples of where this has been done are given in the technical comments section below, but this list is not exhaustive. *The paper should be read carefully by the authors to make sure that all information is in the correct section.* This would make the paper easier to follow.
2. There are some sections where insufficient information is provided regarding terminology. This makes comprehension difficult for a reader not familiar with the topic of Northern European non-exhaust. If terminology was better explained, the paper would be of interest to a wider readership.

Specific comments

3. The title says road dust, but by P1 L17 the text talks about PM10 – and from then on the pollutant is also exclusively referred to as PM10. PM2.5 is mentioned later, but this distracts from the focus of the paper – if this is mentioned, more needs to be said on the proportion of PM10 that is PM2.5 during the episodes. There needs to be an explanation of how these relate; consider changing the manuscript title to refer to PM10.
4. The measurements recorded at the study site need to be put into context early on in the paper e.g. values compared to EU and WHO AQ standards.
5. The figures and tables should be improved to make the paper more attractive e.g.:
 - a. Figure 1 could be made less wide, so that there is an insert which shows more detail of the actual site – either in schematic form or a photograph. Increase text size. Hospitals are shown in pink not red.
 - b. Figure 2 is poor – consider text size and legend location.
6. Include a summary table comparing the FORE and NORTRIP models, including the strengths and weaknesses. Mention dependence on parameters e.g. vehicle speed, traffic volume, HGV/LGV proportions.
7. Section 3.2 on sensitivity analysis is poor – analyses that impact on both non-exhaust models need to be considered. e.g. different met inputs (precipitation), removing brake and tyre wear (this would only affect NORTRIP, but still is shows FORE is insensitive to this, and demonstrates the importance of this component).
8. Consider adding more statistics or analyses that show the improved correlation of NORTRIP over FORE, e.g. an average diurnal profile?
9. The section describing the NORTRIP model needs significant improvement (P5 L9-34):

- a. The paragraph needs to be expanded to explain what has been taken from previous literature, how relevant these values are, and what assumptions are made in the model.
 - b. Is Boulter the right reference here - aren't these the EMEP factors?
 - c. How busy is the street? Can you comment on how accurate you think the brake and tyre wear factors are?
 - d. Sentence starting 'In model formulation...' is not a sentence.
 - e. L13 – say 'The road dust model emission calculation...'
 - f. L28 How does 'ploughing' relate to the activities in Table 2?
 - g. P29 provide reference for 2%.
10. P6 L15 This is a very high roughness value. Justify comparing to values in the literature for similar urban environments. Are you sure that this z0 represents the vicinity of the site, and is not just a value derived from the building heights on the street in question?
 11. Section 2.1.3 Comment on the representativeness of the met for the study area. Could 'spring' be indicated on Figure 2; also the concentration time series should be put on this graph.

Technical corrections

12. P1 L18 says 'Both models', but 3 models have been listed.
13. Last two sentences of the abstract need to be made clearer.
14. P1 L31 and elsewhere, the manuscript refers to 'pavements' – usual English term is road.
15. Improve spelling e.g. tires in P1 L33.
16. Could mention street furniture (P1 L35)
17. P2 L12 say what temporal period winter tyres are mandatory.
18. P3 L7 – is 'it' building-to-building width?
19. P3L7 say why building height relevant, and provide approx. heights. State aspect ratio and comment on porosity.
20. P2 L8 say why the proportion of HDVs is relevant.
21. P2 L10-12 are the high trees really relevant? Doesn't the low roughness of the sea have more impact on dispersion than a few trees. If mentioning the trees can be justified, make sure they are clear in Fig. 1.
22. P2 L17-18 Information about what is done in the modelling should be in the modelling section.
23. P2 L31 The traffic data ARE ... ditto P4 L4
24. P3 L35 which vehicles
25. P4 L1 Is this at the beginning or the end of the season?
26. P4 L6 usually refer to cloud cover rather than cloudiness
27. Section 2.1.4 1st para, should this be in the Introduction?
28. Section 3.1.4, last sentence – should be later in manuscript.
29. P4 L30 'made' not 'done'.
30. Section 2.1.5 re-word last sentence to make clearer.
31. P6 L4 justify use of reference emissions factors for the current study,
32. P6 L10/11 – sentence doesn't make sense.
33. P6 L12-14 explain further
34. P6 L16 Why quote/use different units if they are equivalent?

35. P6 L16 – 28 – Is any of this relevant to the NORTRIP model – if it is, it is in the wrong section.
36. P6 L16-19 – this section is supposed to be on FORE, not the study.
37. Section 2.2.2 Last sentence: explain why not and how much uncertainty this introduces e.g. is the traffic stop-start, or continuous?
38. General comment: mention if the traffic in the model given a time-varying emission profile. This may be important due to the non-linear relationship between emissions, meteorology and resultant concentrations.
39. P7 L3-4 How have these 9 street crossing geometries been taken into account?
40. P7 P6 – why mention NO_x in this paper? Chemistry not relevant. Has this section of text been copied from elsewhere without consideration of its applicability to this particular application?
41. P7 L8-10 comment on meteorological and background pollutant data capture rates.
42. P7 L12 specify 'other' models
43. P7 L15-16 3 instances of poor punctuation and spelling.
44. P7 L19 – 'used as input to the model' rather than 'implemented'
45. P7 L21 say what the model sensitivity analyses demonstrate.
46. P7 L20-22 – refer to sections
47. P7 L28, first sentence – but this section starts with a time series?!
48. P7 L29 is this ACP notation?
49. Table 5 might be more interesting as a bar chart. Stats (NMSE, R, Fac2, Max values) could be of interest because the NORTRIP correlation is better than FORE.
50. P7 L38 – say what 'late' means for those less familiar with the cycle.
51. P8 L5 Improve sense.
52. P8 L11-14. These correlation stats are of interest. Are sub-daily observed concentration values available? Inspect the average diurnal variation to see if there is any relation to congestion.
53. P9 L1 May be non-linear due to congestion.
54. P9 L14-19 Doesn't need a table.
55. P9 L29 Compounds or configurations?
56. P9 last sentence – remove, not of relevance.
57. P10 L11 remind readers not in FORE.
58. P10 Don't need Table 8.
59. P10 around the 2nd paragraph – say something about the consistency of concentrations. If the models predict consistent concentrations why is there a massive difference in predictions in the Feb / March period?
60. P10 L19 which met parameters?
61. P10 L37 Use the term hypothetical?
62. P10 Can some emissions and concentration source apportionment analyses for the road be presented? i.e. in terms of road wear, tyre wear, brake wear, exhaust, resuspension, winter tyres – for both models?
63. Section 4, once other revisions to the paper have been completed, Section should be reviewed e.g. P11 L14-15 – the substantial differences need to be made clearer.
64. P11 L17 Yes!

65. Table 3 – where does the '5 and 10' referred to in the caption come from? What does the last sentence in the caption mean? How do these values relate to the road? Are any of these values from EMEP?
66. Table 5 (possibly elsewhere) as the models are introduced as NORTRIP then FORE, they should be presented accordingly in the table.
67. Figure 4 – explain why FORE does badly Jan-Mar i.e. predicts much larger values than NORTRIP for that period.
68. Reduce the caption length for Figure 5.