



## SDI FINAL EVALUATION FORM 1.1

### PART 1:

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| Journal Name:            | <a href="#">British Journal of Applied Science &amp; Technology</a> |
| Manuscript Number:       | Ms_BJAST_19232                                                      |
| Title of the Manuscript: | Ambient air PM10 particulate levels at Ashaiman near Tema in Ghana  |
| Type of the Article      | Original Research Article                                           |

### PART 2:

| FINAL EVALUATOR'S comments on revised paper (if any)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Authors' response to final evaluator's comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p>The paper has been improved in this second version. Still I find it is a pity that the very valuable data (collected, as it seems, by a state-of-the-art technology) are not used in a more sophisticated way: For example from fig. 3 we learn that there was the most rain in June, but it also rained ( little) in February, April, May and July. Nearly no rain occurred in March and August. But the authors only compare "February" (which they report to be a "Harmattan"-month to the other months. I suggest that wind direction (either carrying humid air masses from the ocean or dry masses from the desert) affects the composition of particulate matter. Desert winds might well be more frequent in February, but even in February there have been some rainy days with likely different wind systems prevailing. The authors do have daily data (as exemplified by figures 5ff) and it would make much more sense to separate days by prevailing wind direction and analyse them separately.</p> <p>But of course it is up to the authors to decide what to do with their data.</p> <p>In spite of this the paper still needs some work:<br/>Page 5, line 159: fine particles are reported to be 21.6 µg/m<sup>3</sup> on average. But in table 2 the number is given as 21.5, not 21.6!<br/>Page 6 lines 194ff: here the authors argue that "sea spray is mostly of coarse mode" but then they suggest that sulphur in the fine mode mostly comes from sea spray. This seems contradictory but it only shows that it is not as straightforward as proposed by the authors to separate the two modes: Very often fine particles get attached to larger ones so it does not make that much sense to analyse the two modes separately.<br/>Figures 5 and 6 (On page 8) seem to have got mixed up. At least at first glance the two pictures look totally alike. Please check!<br/>Tables 3 and 4 (and 5 and 6 as well) report correlation coefficients. These are usually reported as (Pearson's) r. It is surprising that in the text (page 8, lines 238ff) not r but r<sup>2</sup> is reported but this seems to be a mistake because the numbers are the same as in the tables. In figures 7 and 8 regression models are reported and it is common practice to report r<sup>2</sup> in that case (as it reflects the amount of variation of the dependent variable explained by the model). Now if r is smaller than 1 (which it must be according to the definition of r) then r<sup>2</sup> must necessarily be smaller than r. But this is not the case: e.g. figure 7 and table 3 report for Na and Cl 0.97 (table 3, for r) and 0.98 (figure 7, for r<sup>2</sup>). The numbers do not fit with each other! Please check!</p> | <p>The wind direction and speed was used in an earlier manuscript.<br/>The daily, monthly, seasonal and yearly variations in relation with meteorological parameters will be comprehensively looked at in an on-going work that covers a much longer sampling period.</p> <p>The necessary correction effected.</p> <p>The statement made is "Sulphur in the fine could be coming from Sea salt, fossil fuel, biomass burning and industry". This statement is not giving an indication of Sulphur predominantly coming from the fine or from sea spray but only showing the possible sources contributing to sulphur in the fine fraction. Andersen and Gent dichotomous samplers (sampling coarse and fine separately) have been widely used for this type of work.</p> <p>Figure 6 has been replaced with the appropriate graph.</p> <p>The necessary corrections effected. (r<sup>2</sup> changed to r)</p> <p>Table 3 shows Na and Cl correlation (r) only.<br/>Figure 7 shows the r<sup>2</sup> for the linear relationship between 1.8*[Cl] and (Na+Cl). Sea salt can be estimated as 1.8*[Cl]. The level of correlation gives a good picture of the level of Cl loss from the sum of Na and Cl (Na+Cl) in air. The r<sup>2</sup> = 0.98 and r = 0.99<br/>The two relations are not the same and are therefore not expected to have the same results.</p> |