

***Interactive comment on “A linear mixed model,
with non-stationary mean and covariance, for soil
potassium based on gamma radiometry” by
K. A. Haskard et al.***

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We are grateful to the referees for their helpful comments, which we have considered carefully in revising the paper. A revised version of the paper is appended as a supplementary file. We describe below how we have responded.

Referee 1

Comment 1. This is a matter for the Journal \LaTeX style file, which we cannot control.

Comment 2. We have added more on this topic in the third paragraph of section 5.

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Comment 3. There is no rule as to the partition of data between validation and modelling, particularly when, as here, the focus is on understanding a method. We did not want too large a modelling data set, as explained now in the third paragraph of section 3.1.

Comment 4. Since the model was fitted by likelihood not least-squares, a conventional R^2 cannot be computed. To give the intuitive indication of the goodness of the model predictions that the referee suggests, we introduced a prediction adjusted coefficient of determination, R_{PA}^2 , see Equation (10) and Table 1. These show that almost 75% of the variability in the validation data is accounted for by the predictions from the models using the radiometric data as a covariate.

Comment 5. We have provided two references, see the last sentence in section 2.1.

Comment 6. All these sentences have main verbs! We have made some small adjustments which we hope clarify their sense.

Comment 7. We agree with the first change, and have made it, but not the second. It is standard practice to denote the prediction as \tilde{Z} , it is not a realization of a random variable.

Comment 8. We have done this.

Comment 9. Corrected.

Comment 10. Done.

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/7/C1428/2010/bgd-7-C1428-2010-supplement.pdf>

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