

## ***Interactive comment on “Imbalanced nutrients as triggers for black shale formation in a shallow shelf setting during the OAE 2 (Wunstorf, Germany)” by M. Blumenberg and F. Wiese***

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This is an interesting paper, but I have minor concerns with the way the results are presented and interpreted, mainly in figures 4, 8, and 9.

My first, minor, concern is that you apply a linear regression altogether with a ready to use linear equation of the form  $y = ax + b$  and an  $R^2$  value. Although this is done in many works and can further the understanding of the data it should basically be limited to cases where there is one dependent variable (on the y-axis) and one independent factor (on the x-axis). I do not assume that you want to imply that the  $\delta^{15}\text{N}$  value in a sample is directly dependent on the content of hopanones/steroidal ketones in the

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same sample. Figure 8 b, however, would on a first glance indicate that. If you want to keep the regression line as mean of optical guidance you may do so (though I would not recommend that) but you should truly consider omitting the equations. Strictly spoken your data are not perfectly suitable for a Model I linear regression anyway, so why not staying with a simple correlation analysis such as Pearson or Spearman?

This directly leads to my second, more important, concern. The dataset is in most cases rather poor in terms of sample size—you admit that yourselves on page 5385, lines 20–23. Nevertheless you back up your analysis only with the  $R^2$  value, that is merely a goodness-of-fit parameter irrespective of sample size. I would suggest also to give the  $p$ -value together with either  $R^2$  (if you insist in using linear regression), or Pearsons  $r$  or Spearmans  $\rho$ /Kendalls  $\tau$  (if you use a correlation analysis). Since the  $p$ -value **does** take the sample size into account nobody could argue with you if you find a significant relationship between anhydroBHTs and  $\delta^{15}\text{N}$  bulk (fig. 8 a) on the basis of just four data points.

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