**Biogeosciences
Discussions**

Interactive comment on "A global database of soil respiration data" by B. Bond-Lamberty and A. Thomson

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The authors have compiled a soil respiration database that will be very useful for future synthesis work. The likely interest this database will receive may also be reflected by fact that all invited referees have agreed to review this ms, and that all reviews were delivered very rapidly.

All referees found that this manuscript is important in that it describes and provides access to a very comprehensive global database. They have also raised a number of (mostly minor) points that call for a careful revision of the manuscript. The most critical issues from my perspective include, 1) the need to describe the database more rigorously (Ref #2 and 3), including a clear definition and description of parameters and some meta-information documenting how they were obtained, extracted and cal-

culated; 2) further to the point made by Ref #4 on spatial variability, I myself have a question concerning Figure 5, where spatial versus interannual variability in soil respiration are plotted. As correctly pointed out by the authors, the definition of spatial scale is a critical one, and should therefore be explained and discussed in more detail, especially as concerns the input to and the interpretation of the Figure. I am not aware of many studies investigating the spatial and interannual variability in soil respiration simultaneously, and wonder what the paired data shown in Fig. 5 actually relate to. The authors still need to convince me that spatial variability was assessed in a comparable manner across sites, and might like to demonstrate how the spatial scale and the number of replicates taken to estimate spatial variability would affect their result. Furthermore, it could be analysed which types of ecosystems were characterized by a higher interannual variability - from the graph it appears that these were mostly seasonally dry ecosystems.

Along with Ref # 3 I would suggest to place soil respiration, as the dependent variable, on the y-axis for all panels of Fig. 4, and to provide information on intercepts and slopes for the regression lines (Ref #1).

Finally, the ms would certainly also improve from a distinction and comparison of different vegetation types within each of the biomes, as suggested by Ref #2 (and 4).

I am looking forward to receiving a revised version of the manuscript, which should be accompanied by a point-by-point reply to all comments.

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