

## ***Interactive comment on “Soils apart from equilibrium – consequences for soil carbon balance modelling” by T. Wutzler and M. Reichstein***

**Z. Cai (Editor)**

zccai@issas.ac.cn

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This paper challenges the usual assumption of dynamically balanced soil carbon pools in models and presents an interesting trial to solve the problem. It might be useful for modelers to revise their models in the future. However, the writing of the paper is very obscure. The authors need to go through their paper thoroughly to improve the readability. I would suggest at least the following points:

1. Equations 1 to 6 need to be introduced or derived one by one, not to be presented as a whole and explained afterward.
2. Line 3-4 of Section 2.4 is an abrupt statement without any introduction.
3. The last three lines of section 2.4: By adjust which param-

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eter do you decrease the spin-up-run predicted stock of the slowest pool? 4. Line 6 of page 6: you need to introduce how the 4 scenarios will result in different decay rates of the hum2 pool. 5. P6, line 9. No data available on little inputs in Table 2. Where Table 2 might be Table 3. 6. Line 1 of Section 3.1: "Soils carbon stocks that are far from equilibrium had a lower decay rate of the slowest pool and a larger current carbon accumulation rate with the relaxed equilibrium assumption (Fig.3)". This sentence looks like that "far from equilibrium" is the cause and "a lower decay rate" is the effect. The fact is the opposite. 7. Line 3 of Section 3.1: It is abrupt to present the resulting large changes in the theoretical equilibrium stocks of different assumed current accumulation rates. You need an introduction. 8. Line 14-15 of Section 3.2: Again it is abrupt to present "different assumptions of turnover times". 9. Figure 4: the unit of "Equilibrium stocks" is wrong. 10. Figures 6 and 7 are very difficult for readers to understand. 11. Please avoid very long sentences in the paper.

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