

## ***Interactive comment on “Comment on “Carbon farming in hot, dry coastal areas: an option for climate change mitigation” by Becker et al. (2013)” by M. Heimann***

**Anonymous Referee #2**

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The original Becker et al, 2013 paper (“Carbon farming in hot, dry coastal areas: an option for climate change mitigation”) makes an erroneous statement that an additional terrestrial carbon sink of 4.3 PgC/yr would be sufficient to stabilise atmospheric CO<sub>2</sub> at present day levels. A misapprehension of this kind, is likely to have grave consequences if propagated by other studies or if it enters the policy arena. The Heimann Comment identifies this error and illustrates the differences between this 4.3 PgC/yr and a sink that leads to a stabilisation, using a simple coupled climate carbon cycle model. The Comment is to the point, clear and is technically well made.

My only reservation about publication of this Comment is that it addresses a point made in a single sentence in the Becker et al, 2013 paper (last paragraph, page 241). This is  
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not referred to elsewhere in the paper (neither in the Abstract nor Conclusions). As far as I can see, Heimann’s correction of the Becker’s misapprehension does not appear to alter the central conclusion of the Becker paper (“we have demonstrated that carbon farming is a promising mitigation strategy deserving at least as much attention as many of the other geoengineering options”) or any of the others points made. The only reason why the erroneous statement about stabilisation might warrant publication of a comment, is to pre-empt the possibility that other papers will pick up on the assumption that when sinks = atmospheric growth rates, this implies stabilisation.

If the editors do decide to publish, I’d suggest that the introduction be rewritten to make clear that (a) this Comment challenges a very specific assertion made in Becker et al, as part of a wider analysis and (b) it is only challenged in the Comment due to the gravity of its policy implications. As it reads now, the Comment’s introduction implies that Becker’s central argument is that afforestation of dry coastal regions can lead to stabilisation of atmospheric CO<sub>2</sub>. This does not reflect the very minor contribution that this assertion made to Becker et al. 2013

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Interactive comment on Earth Syst. Dynam. Discuss., 4, 869, 2013.