

## ***Interactive comment on “The role of air-sea exchange in the marine nitrogen cycle” by T. Jickells***

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Review of "The role of air-sea exchange in the marine nitrogen cycle" by T. Jickells

In this work T. Jickells presents an inspiring summary of atmospheric nitrogen inputs into the ocean which are compared with those by the rivers. Furthermore impacts of nitrogen fertilization in the coastal and the open ocean derived from many studies are introduced and their results are convincingly summarized. Therefore, I recommend this manuscript for publication in Biogeosciences.

However, I have two minor comments:

First of all I agree with Maren Voss' comment, as I also would have expected that land use changes are leading among others things to an increased desertification and have a strong impact on dust and thus on the global iron cycle.

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Secondly, it is mentioned in the manuscript (page 198 line 20; online version) that nitrogen fluxes are expected to increase over the next decade in China. Recently data have been published by Richter et al. (2005) showing an exponential increase of NO<sub>2</sub> in the atmosphere over China between 1996 and 2004. This study shows also that over the same period of time the NO<sub>2</sub> concentrations have decreased in parts of the US and Europe indicating the difficulties to predict human behaviour. But, of course, if the current trend holds on ...

Richter, A., J. Burrows, P. H. Nüß, C. Granier, and U. Niemeyer, Increase in tropospheric nitrogen dioxide over China observed from space, *Nature*, 437 (1), 129 - 132, 2005.

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