

Interactive comment on “Numerical tools to estimate the flux of a gas across the air-water interface and assess the heterogeneity of its forcing functions” by V. M. N. de C. da S. Vieira

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Dear reviewer2,

I acknowledge the effort and contribution to make this a better article. I have implemented all suggestions. The latest version goes attached as supplement pdf.

Comment: Pgs 4 and 30. The acronyms MOHID, ECO lab, URI, WRL and FIO should be defined
Reply: Done but not quite as suggested: In some cases it was not possible to define the acronym. I chose to give the webpage hoping the reviewer finds this a valid and helpful solution. I am not aware whether this may pose publicity, copyright or any publication problems. If this is the case these references should be removed.

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Comment: Pg 4, 5 lines from bottom. Delete the line “The k_H is Henry’s constant in its Ca/C_w form”.
Reply: Done. This was careless of me while previously editing the text. This sentence got repeated and, together with the following lines, split in another paragraph. It was not supposed to be so. So I also joined in the following lines to the paragraph above.

Pg 5, 9 lines from top. “would be too extensive” should be “would be too extensive”
Reply: Done.

Pg 7, 10 lines from bottom. The standard definition of CD is in terms of a neutral wind speed, u_{10N} .
Reply: Done.

Pg. 7, 2 lines from bottom. “Air temperature : : : may also affect the air transfer velocity, although in a mild manner”. The effect of air temperature is not at all mild, as shown by Smith (1988: J. Geophys. Res., 93, 15467-15472, Fig. 1)
Reply: Done.

Pg 8. Delete the lines “The simplest way was to use the fixed CD proposed by Duce et al (1991). This was unrealistic and its expected bias was assessed comparing with variable drag coefficient formulations dependent on U_{10} as proposed by Smith (1980), MacKay and Yuen (1983) and Taylor and Yelland (2001). But even these were of limited application.” This lines are essentially repeated from the previous pages.
Reply: Done.

Pg 9, 4 lines below Eq (4). The variable ‘ w ’ does not appear in Equation (4), so it does not avoid or reduce the confusion by discussing it here.
Reply: Done.

Pg 17 (fig 6). Add temperature range (T_a changing from 0C to 40C) to caption of Fig. 6
Reply: Done. However, the caption was more incomplete and thus I added more information.

Pg 20, 12 lines from top. “It was attempted”, not “It was essayed”
Reply: Done.

Pg 21, 4 lines from top. “Fourth”, not “forth”
Reply: Done.

Pg 21, 10 lines from bottom. Use “very time consuming” instead of “much time con-

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suming” Reply: Done.

Pg 22, 6 occurrences: when referencing a date, “at the” should be replaced by “on”. For instance, “verified at the 15 April 2011” should be “verified on 15 April 2011”. Reply: Done. I also found the same at other places.

Pg 27, 7 – 8 lines from top. The statement “The latter further proposes intermediate scale waves are the dominant contributors to the ocean surface roughness” is only true for large waves. Reply: Done. Removed.

Pg 30, 14 lines from bottom. ”It is unfeasible the application of the DDF tool to thousands of locations every few seconds.” It is not entirely clear what is meant here. Perhaps “the application of” should be replaced by “to apply” ?? Reply: Exactly. Done.

Pg 31, 11 lines from bottom: “height”, not “heigh” Reply: Done. I believe it was referring to where I had written “height”

Pg 33, above conclusions. A long list of references is essentially repeated twice within six lines. This should be avoided. Reply: Done.

Pg 33 “devoted to oblivian”. It is unclear what is meant here, but presumably the authors mean to say “atmospheric stability and sea surface roughness have been neglected in studies about riverine systems”. This is not entirely true, as atmospheric stability goes into the calculation of 10m neutral wind speeds. Reply: Done. The sentence was reformulated to: “This is particularly evident from how atmospheric stability, sea-surface roughness and current drag with the bottom have often been devalued in studies about riverine systems and coastal waters.”

Further changes:

1. I removed the “de” and “da” from the name initials for simplicity and accordance with other articles published meanwhile.
2. There was an annoying typo on “6. Conclusions” as the word “conclusions” ap-

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peared again in the beginning of the paragraph. I could only remove it by doing \section{conclusion} but OS says should not be so.

3. The acknowledgements where changed.

kind regards, Vasco Vieira

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/9/C1419/2012/osd-9-C1419-2012-supplement.pdf>

Interactive comment on Ocean Sci. Discuss., 9, 909, 2012.

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