

March, 2020.

Subject: Manuscript to Annales Geophysicae

Dear Dr. Petr Pisoft

We are submitting our revised manuscript entitled “**A quasi-experimental coastal region eddy diffusivity applied in the APUGRID model**” to be published as an article in Annales Geophysicae. In the new version of the manuscript, we consider all questions raised by Referee 2 and 3 and provide a detailed item-by-item response to each of the reviewer’s comments.

Sincerely,

**A quasi-experimental coastal region eddy diffusivity applied in the
APUGRID model**

Silvana Maldaner, Michel Stefanello, Luis Gustavo N. Martins, Gervásio Annes Degrazia,
Umberto Rizza, Débora Regina Roberti, Franciano S. Puhales, and Otávio C. Acevedo

Reply to Referee #2

There is an error in the writing of equation 8. You would to put brackets to group the three terms on the right side of the equation without (u^*/k)

We thank the reviewer for the comment. In the new version of the manuscript the equation was corrected.

A quasi-experimental coastal region eddy diffusivity applied in the APUGRID model

Silvana Maldaner, Michel Stefanello, Luis Gustavo N. Martins, Gervásio Annes Degrazia, Umberto Rizza, Débora Regina Roberti, Franciano S. Puhales, and Otávio C. Acevedo

Reply to Referee #3

The profiles obtained in a coastal area are strictly empirical so it is interesting that they can be used in another coastal area such as the suburbs of Copenhagen, a situation, in some respects, very different from that in which they were obtained. The authors should emphasize this result. The Copenhagen data set is composed of few data and therefore suitable only for preliminary validation. The authors should make it clear.

We thank the reviewer for the comment and suggestion. In the new version of the manuscript the following sentence was added on section 2.0.1 lines 127-130:

“The eddy diffusivities obtained from the Linhares ocean coastal environment are empirical. Therefore, it is reasonably relevant that they can be employed to simulate concentration data in another different coastal areasuch as the suburbs of Copenhagen. In this aspect, it can be said that although the Copenhagen data set is composed of a limitednumber of runs, this comparison is suitable only for preliminary validation.”

and on the lines 152-153 was added the following sentence:

“These statistical indices show that the empirical eddy diffusivites obtained in a brazilian coastal site can be used to simulate contaminant dispersion in other coastal areas.”