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Interactive comment on “Assimilation of SLA along track observations in the Mediterranean with an oceanographic model forced by atmospheric pressure” by S. Dobricic et al.

Anonymous Referee #1

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This manuscript presents some developments within the Mediterranean Forecasting System (MFS) to be able to use new type of altimeter data including high frequency signals such as the ocean response to the atmospheric pressure. To be able to evaluate the potential of these new products, the atmospheric pressure forcing term has been implemented in the NEMO configuration used in MFS. A series of experiments have been performed in which, the model includes or not the atmospheric pressure forcing, and the altimeter data assimilated include or not the high frequencies. The paper shows (i) that the best solution is obtained when both the model and the observations are consistent (e.g. when the model does not include the pressure forcing, it is better to use high frequency filtered altimeter data), and (ii) that including the high

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frequencies due to the atmospheric pressure forcing in the model and the observations improves the results. This manuscript is well written and presented, the English (I'm not English native) seemed good to me, the results are novel, scientifically valid and well documented, and I think that this paper deserves to be published in Ocean Science after some minor corrections are included:

(i) List of Authors: to my knowledge, M. –H. Rio is at CLS and not at INGV. Change the affiliations accordingly. (ii) §2.2, P1581, the nesting of this model in Mercator-Océan is discussed in Oddo et al. 2009. Refer to this paper here please. (iii) §2.2, P1582, 9 lines from bottom: there is apparently something missing in front of “the one” in the sentence “. . . in the procedure similar the one. . .” (iv) Table 1: SIM2: I think there should be a NO in the “Atmospheric pressure in the dynamical model” column and not a YES (v) Figure 1: I think the legend: “during the 2009” should be replaced by “during the year 2009” (vi) A discussion about the fact that other high frequency signals (not only the response to the pressure) may be present in the unfiltered SLA products and how it may impact (or not) the results could complement positively this paper (viii) I would have liked to see the figure 4 and 5 superimposed (or at least ATPR1 and CONT2 curves), and to read a comment on the comparison of the two curves, so that to be able to understand the benefit of the best of ATPR (using the high frequencies in both model and data) with respect to the present implementation (CONT2).

Interactive comment on Ocean Sci. Discuss., 9, 1577, 2012.

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