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Interactive comment on “The CORA dataset: validation and diagnostics of ocean temperature and salinity in situ measurements” by C. Cabanes et al.

Anonymous Referee #3

Received and published: 24 May 2012

Journal: OS Title: The CORA dataset validation and diagnostics of ocean temperature and salinity in situ measurements. Authors: Cabanes, Grouazel, von Schuckmann, Harmon, Turpin, Coatanoan, Guinehut, Boone, Ferry, Reverdin, Pouliquen, and Le Traon. MS No.: os-2012-42 MS Type: Research Article

General Comments:

This paper presents the CORA dataset and most notably the details of the validation of data held within the CORA dataset. This is an important task for the oceanographic community and communicating procedures through journals seems justified. Ocean Science Discussions should accept this paper with minor modifications.

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Little was presented in this paper corroborating the quality control choices that were made. The presentation of a “Global ocean indicator” moved in this direction. But the attempt did not seem very robust, and in my opinion should be discussed in more detail in a future paper or expanded upon.

Specific Comments:

Page 1276, line 11: It would be more appropriate to state “...models equipped with FSI sensors and built by Woods Hole Oceanographic Institution.....”. The majority of WHOI built floats are deployed by WHOI, but not all.

Page 1278, line 16: While perhaps obvious from the text, the Wong et al citation does add some uncertainty. Does all types of data go through the same Argo program checks? If so it might be a help to state that the automatic QC procedure designed for Argo is applied to all data types (explicit).

Page 1278, paragraph with line 25: In this paragraph a number of netcdf format files are presented. It would aid the reader if it was stated whether these data types are only in-house types or are more commonly available from other data depositories.

Page 1286, line 2 : The QC flags used in the Argo program have been adopted, and at some point in the text a citation towards Argo documentation is given. At one point in the text, the flags 1 and 4 are defined, however elsewhere in the text, flags 2 (page 1291, line 4) and 3 (page 1286, line 2) are mentioned without definition. It would be helpful to either shortly define these extra flags, or even better add a small table of common flags.

Page 1286, lines 4-15 : The description of XBT corrections is the only section where I felt not enough information was given to the reader. First is there enough reference profile data within 2 degree lat/lon and 15 days of a XBT? If there isn't what is done? Could “error of immersion” be described? The consideration of bathymetry makes sense...why not extend that to areas of strong geostrophic currents?

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Page 1288, line 7-8 : Towards the beginning of the document (page 1278 line 20-21) it was stated that outside QC flags are kept. But here it says that flags are set by Coriolis and CORA. In general, the paper seems unclear on whether outside flags were used, or were ignored. Another instance...page 1289 line 22..." these data have been re-qualified..." This could mean that all flags were reexamined from previous values or flags were created from scratch. The difference between re-certifying flags and starting from scratch seems to me to be an important.

Page 1290, line 4 : Is an Argo profile bad if only a single level is bad? It is unclear.

Page 1290, line 8 : I think it would be more accurate to say "mainly WHOI SOLO floats with FSI CTD sensors "

Page 1290, line 10 : In the aggregate, the WHOI FSI floats resulted in a cold bias, however individual profiles, or regions of profiles from float sub-types could have been warm. It is an important distinction.

Page 1291, lines 8-12 : It is stated that "13% of TNPd are flagged as bad" This is quite a low number. However, the reader is unsure if this is all the profiles that should be flagged bad by Argo guidelines. Without giving some idea of how many should be flagged bad, this statistic is not very meaningful.

Page 1291, line 16-18 : Is it Argo policy to delay-mode quality control the salinity profile while not quality controlling pressure? If so this needs to be brought to the readers attention.

Page 1292, line 3 : To what does (>50%) refer?

Page 1292, lines 28-29 : The authors give one possible interpretation of the near-agreement in figure 12. I don't think it is the only reason. Since no further evidence of the other variables involved, perhaps this statement should be softened.

Page 1293, lines 1 : How is the error bars in figure 12 determined?

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Page 1293, line 11 : reads “Any validation system is perfect...” Is this as intended?

Page 1293, line 17 : reads “...to do not flag a profile as bad if we had some doubts.”
This is unclear what the meaning is.

Figure 1 : It would be helpful to define the 'envelope' used in the caption.

Figure 10 : The 2 colors for APEX and (with TNPD) are very close, perhaps different colors could be chosen.

Interactive comment on Ocean Sci. Discuss., 9, 1273, 2012.

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9, C394–C397, 2012

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