

Interactive
Comment

Interactive comment on “Improved quality check procedures of XBT profiles in MFS-VOS” by F. Reseghetti et al.

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**** General comments**

I found this a useful paper and recommend publication with minor changes: clarifications and also the wider context. I was particularly pleased to see that the authors have addressed the issue of residual temperature biases after the fall-rate has been corrected as far as possible.

However I do have some general points for attention:

1. Having read Paper-I (submitted to JAOT), I consider that the two papers have considerable overlap, and it would have been better to either combine the material into one paper or perhaps to have two papers back-to-back in one journal. In particular Paper-

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I explains some things better (including "data aquisition beyond the normal terminal depth") and gives a wider context: geographical/water-mass variation of fall-rate and more references. (Comment 4 also refers.)

2. I found the title less than helpful because a) to me "quality check procedures" (or quality control) are concerned with detecting individual erroneous values (such as spikes) or whole values whereas the focus of the paper is on recalibration or bias correction of the XBT profiles. b) MFS meant nothing to me. My suggestion would be "Improved recalibration of XBT profiles in Mediterranean Forecasting System"

3. Some of the abbreviations used (FRC, ETC, ATI, LPH) made the paper slightly more difficult to read; I suggest that ATI be replaced by "aquisition time" throughout and that FRC be replaced by "fall rate coefficients". DB = Deep Blue should be made explicit at first usage.

4. In the comments and conclusions I would like to see some discussion of when and where it might be appropriate to use the revised fall-rate equation and temperature correction. Firstly it should be said that these are (or may be) water mass dependent and have only been established for the Mediterranean. Secondly, while it is entirely reasonable for a centre such as MFS to make and use such corrections internally that any data distributed internationally should conform to established international practice (ie IGOSS fall-rate equation and no temperature corrections).

It is much better for data processing centres to have profiles with known biases than to have profiles and not be sure whether they have been bias corrected or not as can too easily happen due to missing or unclear metadata or documentation (the introduction of the IGOSS revised fall-rate equations in 95/96 caught out a number of processing centres and large numbers of double-corrected XBT profiles).

**** Specific points**

5. In abstract "changes in quality control procedures, and more important," - I would

omit this (related to point 2). I would add a mention of temperature (bias) correction.

6. p 1443 line 2, suggested rewording: "estimated to be 2% of depth or 5m, whichever is greater."

7. p 1443, I would put Reseghetti et al in the references rather than in a footnote

8. p 1445 line 4, suggest changing "re-scaled" to "adjusted" - scaling tends to imply a multiplicative factor

9. p 1445 line 6, suggest changing "quality check (qc) procedures" to "processing" (as in note 2)

10. p 1448, section 3.3 add references to previous tank comparisons? Budeus and Krause (1993) and Roemmich and Cornuelle (1987).

11. p 1448, line 22, bias of 0.04 to 0.08 - mention that this is about double that in table 6 of Paper I

12. p 1449 "4.1 Fine tuning" - it would be clearer if this subsection was titled "Temperature correction"

13. p1451 line 3, change "rescaling" to "adjustment" (or "offset") - see note 8

14. p 1455 line 10/11 "is depending" => "depends"

15. p 1458, Maillard et al reference - where can this be obtained from?

16. Table 1. Better to refer to "Nominal" maximum depth. I'm not sure if this table is necessary, and it is very similar to table 3 of Paper I.

17. Table 2. I assume that one of the Hanawa et al sets of coefficients is that recommended by IGOSS - which one?

18. Table 3. I would have liked to see a map of the profile positions (plus those from Paper I).

19. Figure 1 (+ figures 8, 9, 11, 12) - as CTD is used as the reference it would seem better to plot $T(\text{XBT}) - T(\text{CTD})$.

20. Figure 1. There appear to be more than the 10 T4s and 12 DB profiles listed in Table 3 - have profiles from Paper I been included as well?

21. Figure 9 caption. "As in Fig 7" should say "Fig 8"

22. Figure 11 caption - needs clarification. My guess is that the fall rate coefficients from table 7 and the temperature correction (or fine tuning) from table 8 have both been used - but are they the "All" values or those optimised separately for the W and E Mediterranean?

23. I would have liked to see the information on mean and SD temperature differences as a function of depth tabulated at the different stages of processing, to summarise the plots in figures 8, 9 and 10/11.

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