

Interactive comment on “M3A system (2000–2005) – operation and maintenance” by G. Petihakis et al.

G. Petihakis et al.

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REPLY TO THE ANONYMOUS REFEREE

The authors would like to thank the anonymous referee for his constructive comments which we believe contribute to the improvement of the manuscript. Having considered each one separately we appose our response below:

Comment 1 There is reference to 3 different ships used to carry out maintenance; a brief description of their characteristics and limitations would be useful.

Response 1 The length of each boat has been added together with the appropriate HCMR webpage address.

Comment 2 One of the tenets of the paper is the ‘relatively low cost’ of the mooring approach. No financial figures are presented to support this. It would be highly

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valuable to know broad costings (e.g. initial capital costs, subsequent capital costs, maintenance costs, calibration costs, communication costs) against other measurement method costings, to allow the reader (who may have similar mooring aspirations) to judge the statement.

Response 2 The costs associated with the M3A operation have been added in the manuscript and are divided into:

Initial Capital Cost: 319.000 USD (252.000 EUR) plus the initial cost of the surface buoy (developed by previous projects) that can be estimated to approximately 120.000 EUR

Maintenance: - Boats ¶ Aegaeo 6000 EUR/d ¶ Philia 2000 EUR/d ¶ Iolkos 120 EUR/d
- Consumables 1000 EUR/maintenance - Personnel 1300 EUR/maintenance

Calibration Costs: ¶ Consumables: 300 EUR ¶ Personnel: 1900 EUR

Communication Costs: 80 EUR/month for GSM communication, 400 EUR/month if the Iridium system (optional) is used

Other Costs: ¶ Argos mooring location service: 120 EUR/month

Comment 3 Page 168, line 11: not sure of the units used to define geographic position.

Response 3 The units are expressed in degrees minutes and decimals of minutes. The appropriate symbols have been added.

Comment 4 Pages 169 & 177: some confusion about the role of the Nireus PC, p 169 says CTD data transferred to Nireus, p 177 says data from CTDs and Nireus downloaded into a PC.

Response 4 Nireus was hosting the underwater PC which was responsible for the initialization of the sampling procedure in line 2, the logging of the measured data and the transfer of this data to the buoy. Thus the data was stored both in the CTD's memory as well as in the PC hard disc offering a back up facility which proved to

be very helpful as the CTD didn't have flash memory but required continuous battery energy. This sentence has been added in page 169 clarifying this.

Comment 5 Page 171, line 10: define 'top' (Target Operational Period?).

Response 5 The Target Operational Period has been defined in the text

Comment 6 Page 177, line 13: 'Although the deployment area Eˇ ' should read 'Although the sea bed in the deployment area Eˇ '.

Response 6 The sentence has been corrected according to the suggestion

Comment 7 Page 181, line 5: The differences between phase 1 and 2 seen in the temperature (100-500m, fig 7) are ascribed to two possible reasons, it would be helpful if some more positive statement could be made as to which process was dominant, and when.

Response 7 We have suggested these two mechanisms because both of them could have the same effect i.e. to change the stratification at intermediate depths. To arrive to more definite conclusions one should have data from winter of 2004 (and possibly previous winters) and check if mixing processes (intermediate water formation) were present or not. Since such data are not available, we had to consider also the second possible mechanism i.e. the change of stratification due to variability of mesoscale features. The verification of this second mechanism should involve consistent analysis and comparison of SST images for the two phases of M3A deployment but such an analysis would be out of the scope of this paper. We suggest to keep reference to both mechanisms with slight modification of the text.

Comment 8 Page 182, line 11: some evidence of this interesting phenomenon would be of interest.

Response 8 This significant vertical displacement was recorded by both pressure sensors onboard the CTDs and the ADCP deployed next to line 2 so there are no reasons to argue that it didn't happen.

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Comment 9 Page 183, line 1: please give some examples of the ‘minor problems’ which could be solved by the two-way communications.

Response 9 This facility was mainly for reprogramming purposes. This has been added in the sentence.

Comment 10 Page 189, table 1: I don’t think this table is necessary, a sentence or two in the text giving examples of scheduled and emergency visits will suffice.

Response 10 The authors feel that the table is not only informative about the number of visits done but also on the temporal frequency these were made and the problems encountered. This information in our opinion helps the reader interested on such operations and with the addition of the costs as requested by the reviewer one can have an idea on the total budget required.

Comment 11 Page 196, figure 6: 6b and 6c can be removed as they are not discussed in the text.

Response 11 Although these two figures are not discussed the authors feel that are helpful for the interested reader.

Interactive comment on Ocean Sci. Discuss., 3, 165, 2006.

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